Electrical wholesaling

WHOLESALER'S SALESMAN

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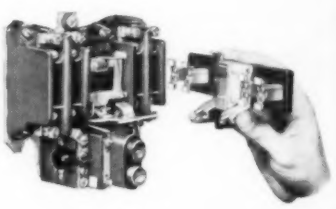
You never can Escape Dust!

Dust is no respecter of persons or places. It settles on horizontal surfaces everywhere whether these surfaces are tops of officers' caps or parts inside motor control in a factory.

Because dust is so commonplace, it is very easy to underestimate the trouble it can cause in modern electrified manufacturing. And *that* is too serious to ignore in these days when interruptions to production are not only a hazard to industrial efficiency but to national security as well. This is no time to take chances. Guard *your* production with dependable Cutler-Hammer Motor Control, the Motor Control that uses dust-safe VERTICAL contacts exclusively . . . the contacts that *can't* collect dust, that *stay* clean to work better and last longer. Specify Cutler-Hammer and see the difference. CUTLER-HAMMER, Inc., 1327 St. Paul Avenue, Milwaukee, Wisconsin. *Associate:* Canadian Cutler-Hammer, Ltd., Toronto.

Cutler-Hammer Vertical Contacts are the mark of *better* Motor Control, another extra dividend on Cutler-Hammer's unequalled specialized experience and decades of Motor Control leadership.



CUTLER·HAMMER
MOTOR CONTROL
C-H

Dust Safe VERTICAL *Contacts*

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1892-1942 50th ANNIVERSARY

What Can I Do?

EVER SINCE that Sunday morning when havoc swooped from the skies upon Honolulu, a new question has been churning about in millions of American minds. It is this: What can I do to help my country win this war?

This insistent question has pushed aside all matters of personal interest. From now on, individual wants and wishes must give way to the paramount needs of the nation. We all accept that. We have undertaken a huge job. Or, I should say, we have had a huge job thrust upon us. And unless we see that job through successfully it won't much matter what any of us may want.

That job is to win this war.

No longer are we trying to prepare for a war that we may get into. Today we are trying to win a war we're already in—and in up to our eyes. Nothing that any one of us now can do to help himself can get him very much if it does not also help our country to win this war.

I am sure that those who read these words will find many things to do. Some will enlist in the armed services. Some will become active in civilian defense. Some will labor to relieve distress in their home towns. Some will work with organizations set up to serve the men at the front. Each can and will find something he can do.

But this insistent question "What can I do?" goes beyond the individual and his personal service. It re-echoes through the offices and the shops of every American business concern. And what I have to say here is not directed toward individual effort. Rather is it intended for the men and women of American industry who make that industry a living part of American life. Today they are asking themselves: What can industry do? Or better still, what *must* industry do if our country is to finish the job it has started?

Those of us who work in and with American industry have one supreme obligation. We may feel very patriotic; we may be willing to serve "in any capacity;" we may be willing to sacrifice . . . if necessary. But if we fail to meet that one obligation, we shall fail our country in its time of need.

THAT SUPREME OBLIGATION IS AN HONEST DAY'S WORK, EVERY DAY, FROM EVERY MAN, EVERY WOMAN, EVERY MACHINE. . . .

IT IS AS SIMPLE AS THAT!

And that goes for all of us, whether we are engaged in civilian production or working directly on the weapons of war. American victory can be won only through the productivity of American industry.

Efficiency in production is not the responsibility of a few. It can be achieved only as we all put to useful purpose every minute of our time, every ounce of our energy, and every pound of our materials.

This responsibility of industry is the more vital because of what has happened to the business of making war. There was a time when success in war was chiefly a matter of well-trained, well-disciplined armies and competent leaders—when men were everything. In those days, military strength was a matter of strong battalions and able generals. Both still are vital. But today military might is essentially mechanical might. Modern war is an industry just as much as a factory or a railroad. In the first World War, mechanical equipment was relatively simple and limited. But today the special equipment of war and the expert skill needed to use it spell the difference between victory and defeat.

We Americans are not expert war-makers. That is why we must expect to suffer grievous losses before we can win substantial gains. We do not have military training and experience ready to hand when we need them. Neither do we have, ready for action, enough of the machines that are so essential to modern warfare.

So, when it becomes necessary to fight for our lives, we must start from scratch. And today, after a year's effort, we still are not ready to trade blow for blow with enemies who for years have schooled their leaders, trained and disciplined their people, and organized their industries to make war. We shall need more time to develop our strength. And while we are doing that, we must expect reverses.

But there is a brighter side to all this. For it follows that if we are granted this all-important time, the change in the method of warfare is right down our alley. The greater importance of mechanized equipment plays straight into the hand of the world's greatest industrial nation . . . if there is one thing America does know, it is industrial production! Our industries know how to produce. They have the skilled manpower. They have the organized facilities. Beyond any doubt, we can produce all that we need to win the victory that we *must* win—if only we are given the time.

THE FIRST RESPONSIBILITY OF THE ARMED FORCES IS TO GAIN THAT TIME FOR US.

THE FIRST RESPONSIBILITY OF INDUSTRY IS TO USE TO THE FULL EVERY SECOND OF THAT TIME IN PRODUCING THE WEAPONS

THE ARMED FORCES NEED TO WIN THE ULTIMATE VICTORY. INDUSTRIAL PRODUCTION IS THE KEY TO VICTORY. BUT IT MUST BE BIGGER PRODUCTION AND FASTER PRODUCTION THAN WE EVER HAVE KNOWN.

Heretofore American industry has worked to produce more of those things which make our lives more enjoyable. Today it must divert much of its energy from the products of peace to the weapons of war.

This change sets up a new yardstick of industrial performance. In time of peace we measure production efficiency in terms of money saved. From now on, we must measure efficiency chiefly in terms of time saved. For the plane, the tank, the gun, or the ship that is ready when it is needed to win a victory, is worth a million times more than the one that is delivered too late to avert a defeat.

Everyone knows how short we are of some materials and machines. But our most tragic shortage is the shortage of time. So whatever we may waste in the days ahead—and unhappily we are bound to waste plenty—let us never forget that the most deadly waste of all is the waste of time.

Time wasted never can be replaced. No one ever has discovered a substitute for time. If we would avoid the waste of this irreplaceable ingredient of victory, we must use every minute of it effectively—*while we still have it.*

That goes for us all. It goes for the man or the woman at the bench, at the desk, at the counter, in the field, or in the executive office. It goes for the politician as well as for the business man. It goes for the humblest and the most powerful. A nation at war cannot carry deadheads. It cannot spare a square foot for any one who will not pull his weight.

In this war, nothing short of complete victory can save the liberties of us all, rich and poor, employer and employee, haves and have-nots alike. The price of that victory is the labor, the loyalty, and the devotion of every last one of us. Winston Churchill said it well for the British people. You know how he said it. I need not repeat it.

All this imposes upon American industry, its owners, its managers, and its workers, the gravest responsibility they ever have assumed. If our country is to survive as a free nation, American industry must rise to that responsibility. If our country should fall, it would fall because American industry fell short of the need. It would be another case of "too little and too late".

This grave responsibility calls for the keenest management industry ever has known. It calls for unremitting research to make the most of our resources. It calls for the reduction of waste to a record minimum: that goes for waste of time, labor, and material. It calls for keeping our machinery working as near to full capacity as we can contrive. It calls for the highest rates of unit production we ever have known. That will mean skillful coordination by management and the most intelligent cooperation that the men in the shops can give. It calls for inventive ingenuity to match that of a nation which has produced some of the world's outstanding technical genius. For this is a war of technical proficiency.

But above all, it calls for a new devotion to the day's work. For so long as we are at war, the day's work will determine our country's security.

Whatever may be our material resources and our technical skill, however resourceful our management, however broad the scale of our effort, industry cannot measure up to its prodigious responsibility if any of us shirk the day's work. Right there is where we find the one thing we *all* can do—the one thing that is within the power of each of us.

THAT ONE THING IS SIMPLY TO DELIVER AN HONEST DAY'S WORK WHEREVER WE ARE CALLED TO SERVE. HONEST WORK WILL WIN THIS WAR. LOAFING WILL LOSE IT. THE SHOWDOWN WILL BE WHETHER HITLER CAN DRIVE HIS PEOPLE TO WORK HARDER THAN WE ARE WILLING TO WORK. THERE IS NO ONE TO DRIVE US. WE MUST DRIVE OURSELVES!

Is that so much to ask? It is all our country asks of us, the men of industry. It is all that the men who must work the guns and tanks in the field ask of us. It is all that the men who work our ships and our planes ask of us. "Give us the planes, the guns, the ships, the tanks, and all the rest of our tools," they tell us, "and we'll give you the victory that means so much to us all. But, in the name of that victory, give them to us quickly—QUICKLY—QUICKLY!"

Is that, I repeat, too much to ask of us?

* * * *

To help American industry achieve ever-higher standards of efficiency has been the traditional mission of McGraw-Hill for three-quarters of a century. Normally that effort has been directed toward higher efficiency in the business of peace. But, as in the first World War, twenty-five years ago, it now is directed toward efficiency in the business of war and in every department of American effort that can contribute, directly or indirectly, to the achievement of victory.

And to that mission, I here pledge every resource of this company, its publications, its books, its staff, and every service it is qualified by experience and training to render to American industry, now enlisted in our common cause.

That is what we of McGraw-Hill can do. And that is what we *shall* do to our utmost.

James H. McGraw Jr.

President, McGraw-Hill Publishing Company, Inc.

This message is appearing in all McGraw-Hill industrial and business publications, reaching over a million readers.

Publisher's bind

WHOLESALER'S SALESMAN

Remember Pearl Harbor!

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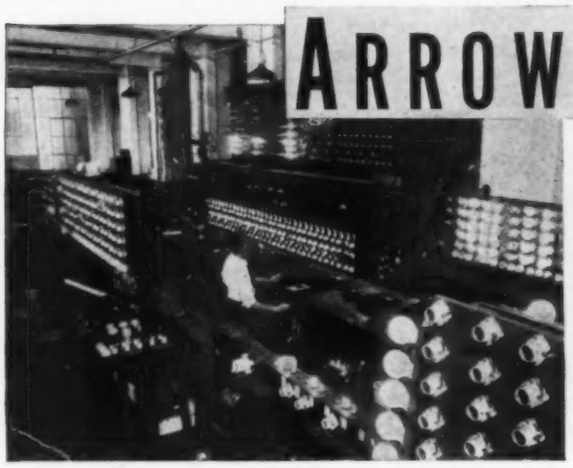
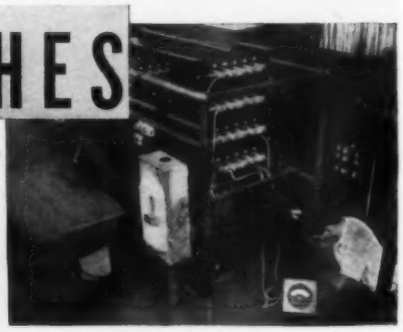
TIME-TESTED 51 YEARS; LABORATORY TESTED EVERY DAY

ARROW SWITCHES



Engineer making insulation or dielectric tests. 250 V. Snap Switches tested at 900 V., A.C.; 600 V. Switches tested at 1500 V., A.C.

Life-testing machines for Tumbler Switches.



Non-inductive resistance load equipment. For testing higher-rated switches up to 600 Amps., 250 V.

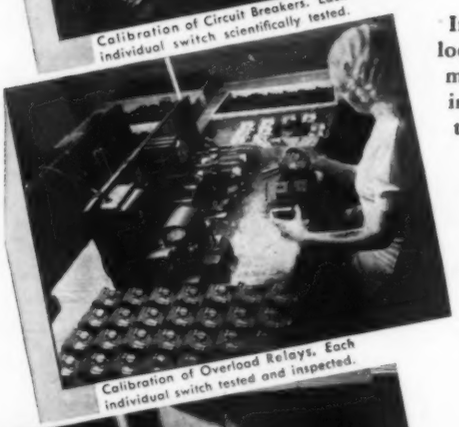
FOR PRE-DETERMINED PERFORMANCE

Calibration of Circuit Breakers. Each individual switch scientifically tested.

Synthetic load equipment for testing the load limit of T-rated Switches.

Left: Electric oven for temperature tests. Right: Calibrating first production samples of Circuit Breakers.

Testing-machines for endurance and life tests, with and without load; Tumbler and Snap Switches.



Calibration of Overload Relays. Each individual switch tested and inspected.

If you look for RELIABILITY in Switches, look for it first in the records of testing machines! Here, Reliability is measured in terms of load limits, cycles of operation with load, mechanical life-tests.

Reputation is built on the tests of *USE*. But these tests of the Laboratory are still more severe; more exacting than any Underwriters or Federal requirements.

Just as the *past* reputation of ARROW Switches is a known quantity to you, here its *future* is a known quantity too, predictable from our test findings. Your complete satisfaction with every switch is pre-established by overload, heating, insulation and mechanical life-tests.

ARROW Switches, you see, are not just sent out into the world with our best wishes for a long life. Their long life is PRE-DETERMINED, as your confidence in them is assured-in-advance, *in the Laboratory*.

Main switchboard in Testing Laboratory, for production and research tests under overload.

Inspection and production-testing of Magnetic Switches, for perfect operating efficiency.

ARROW ELECTRIC DIVISION
THE ARROW-HART & HEGEMAN ELECTRIC COMPANY, HARTFORD, CONN.

TIMES and TRENDS

JANUARY.....1942

Remember Pearl Harbor Japan's dastardly attack on Pearl Harbor, staged on Sunday, December 7th, 1941, may have given its perpetrators brief cause for jubilation but it is certain that future historians will mark that assault as the most costly and suicidal act of treachery ever committed by a nation.

Up to the moment when the first news of the bombing came over the radio to blast the tranquility of a peaceful Sunday afternoon, this great nation stood seriously divided over the question of whether it should support active participation in the world conflict. There were many who held that the end of the conflagration might be hastened if this country, Earth's strongest bulwark of Freedom, could hold aloof.

Today this country stands united, with 130 million people welded overnight into one angry and militant unit by the treachery of its enemies. We stand grimly determined to give the utmost in resources, labor, effort and sacrifice so that the world will not sink into the state of slavery and darkness that would be the inevitable result if Hitlerism were to emerge victorious.

From the toil and stress and strain that lies ahead, neither wholesalers nor their salesmen can escape.

Urgent demands of the emergency call for speedier and greater production through longer hours and harder work. Industry will go on a 24-hour per day, 7 days per week, 365 days per year schedule "for duration." Farmers will be expected to squeeze every possible ounce of food stuffs out of every acre that can be put under cultivation.

All this will mean that existing electrical equipment on farms and in factories will be taxed far beyond normal, while new extensions will be needed in thousands of places.

Upon the electrical wholesaler rests the responsibility of making available at point-of-use, and ready for instant delivery, those thousands of different items that serve to put and keep electric light and power on the job. His organization must be ready and willing to answer break-down or emergency calls at any hour of the day or night. Whether it be a single fuse, a switch, a motor or a truckload of stuff, the wholesaler must meet the needs of our war effort when they arise. No wheels must be allowed to stop or remain idle because some electrical wholesaler failed in his mission—except through causes beyond his control.

Such was the record that this industry chalked up in the World War. Such must be the record of the present generation of wholesalers in this new and greater emergency.

REMEMBER PEARL HARBOR !

What Can I Do? Your personal answer to that question is supplied in a stirring editorial written by James H. McGraw, Jr., President, McGraw-Hill Publishing Company, Inc., and featured in this issue.

In his message Mr. McGraw has not minced words. His logic is cold and crystal clear. His conclusions are inescapable, complete, final. No one will want to compromise with the responsibility that Mr. McGraw makes ours, for it is no more than the very minimum of duty

(*Continued on page* 15)

YOU'RE RIDING WITH
when you sell Fluorescent Lighting

Here's why

50 rigid tests by impartial Electrical Testing Laboratories, such as this on temperature rise, guard FLEUR-O-LIER value for you and your customers.

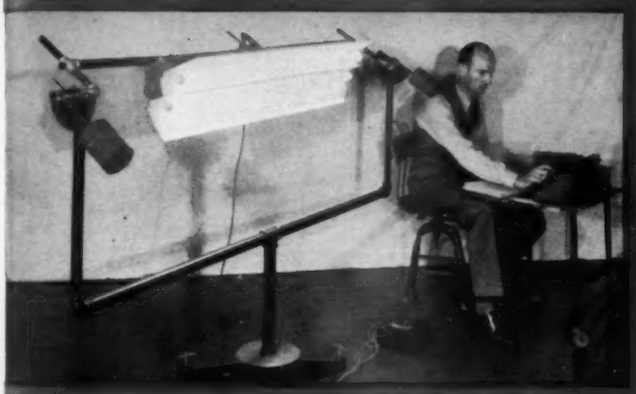
Certified starters. This test, under "failed lamp" conditions, one of the toughest tests a starter can have, checks starter operation . . . helps insure long life and high quality performance.

FLEUR·O·LIER

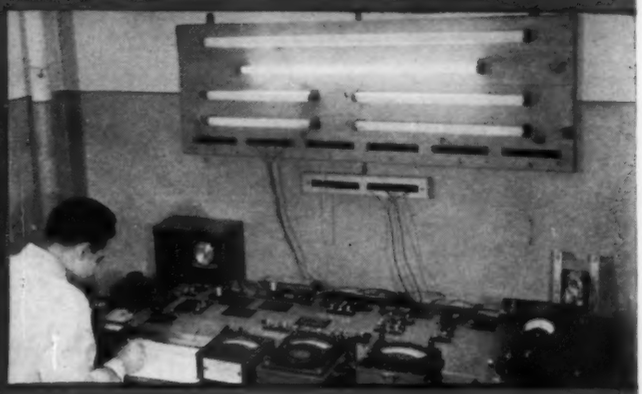
Participation in the FLEUR-O-LIER MANUFACTURERS' program is open to any manufacturer

A WINNER

Fixtures labelled FLEUR·O·LIER



FLEUR-O-LIERS give maximum light output, valuable help for vital "all-out" production. And their efficient lighting performance is verified by impartial experts through tests like this.



Certified ballasts. This test checks ballasts to insure reliable, balanced operation. It looks like a long pull ahead. So, today, certified high quality equipment is more important than ever!

This full page in January 24th SATURDAY EVENING POST heads powerful advertising drive in consumer and trade magazines... helps you Sell!

★ tested
★ certified
★ guaranteed
★ advertised

FLEUR-O-LIERS

Over 35 leading fixture manufacturers make FLEUR-O-LIERS, in 150 different sizes, types and designs... all *certified* by Electrical Testing Laboratories as meeting 50 specifications set up by MAZDA lamp manufacturers for the protection of you and your customers.

CERTIFIED FIXTURES FOR FLUORESCENT LIGHTING

who complies with FLEUR-O-LIER requirements

TEAR OUT AND MAIL

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Please send me FREE new booklet "50 Standards for Satisfaction," together with list of Fleur-O-Lier manufacturers.

Name _____

Address _____

City _____ State _____

WHOLESALER'S SALESMAN

+

CHAMPION LAMPS

Champion Lamps are licensed under General Electric Company incandescent and fluorescent lamp patents. They have a national reputation for quality and dependability since 1900.

Are you selling merely merchandise today, or are you selling merchandise, service, and good-will to your customers—giving them the real help today that will mean more business and help for *you* when the day again comes when materials are more plentiful than customers.

If you are a *good salesman,* you are selling both merchandise and service to the extreme extent of their availability—you're an important factor in the purchasing organization of your customers.

Can Champion help you on such an important job? We think it can; and thousands of Wholesaler's salesmen *know* it can help them to help their customers keep the wheels of industry turning.

Look into the Champion Lamp proposition. See what it can do to make you more effective in meeting today's urgent and essential demands. Get the whole story from

CHAMPION LAMP WORKS

Lynn, Massachusetts

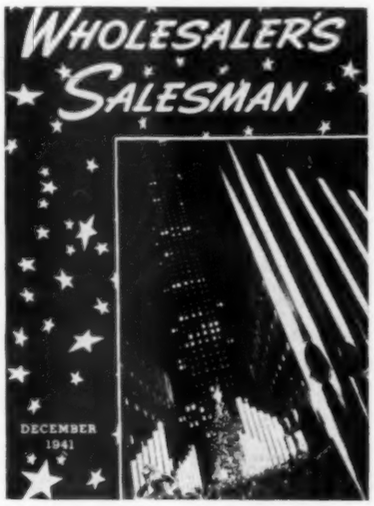
A DIVISION OF CONSOLIDATED ELECTRIC LAMP CO.

and devotion that each of us must bear toward our country and the cause of Freedom.

And—Mr. McGraw's answer to that question "What can I do" applies to anybody and everybody, to those in factories or on farms, in shops or on ships, in study rooms or offices, at home or on the highways. It is a universal answer, and the more quickly it is universally heard—and heeded, the sooner this war will be won.

(A limited number of reprints of Mr. McGraw's editorial will be supplied without charge upon written request.)

Our Cover Last Month Inadvertently, we neglected to print the usual credit line in connection with the cover of our December, 1941 issue. Lest you do not recall how it looked, we have reproduced it, and here and now express our thanks as follows:



To the Nashua Gummed and Coated Paper Company for permission to use its star-studded paper design as background; to Hygrade Sylvania Corporation, who furnished the lamps for the Rockefeller Center Christmas tree;—and the photograph by Rodney McCay Morgan, architectural photographer.

Wholesale Trade According to the U. S. Census Bureau there were, in 1939, a total of 200,573 wholesale establishments of all kinds in the United States, and their sales amounted to $55,265,640,000. Over two-thirds of the concerns accounting for that huge total of business *were independents.*

Those figures are important from two separate and distinct angles. First: They prove that chain operators are not "pushing the independent off the map," as is so frequently contended. Second: With the total value of goods manufactured in the U. S. during 1939 estimated at less than $70 Billion and over $55 Billion of sales reported by various wholesalers, there should be no longer any talk about the wholesaler "passing out of the picture."

Cartons Up to recently, the matter of cartons interested few, if any, wholesalers. They took good packaging on the part of manufacturers for granted, and if certain products showed too much breakage, they squawked freely and loudly.

Today we have the job of helping our country win a war. Many products used in packing and packaging are scarce already, will become scarcer, before long may become unobtainable.

This will mean that manufacturers will have to modify or even abandon present methods of packing their products for shipment.

Wire and cable will once more, as far as possible, come in coils, for reels are scarce. Some items, now individually packaged, may have to be shipped in lots of 4 or 6 or 10 to the case. Certain products may have to go loose, in bulk cartons, boxes or barrels.

Wholesalers may have to provide different means for stocking products so affected, but in doing so let them refrain from grumbling. In order that we may win this war we shall have to endure many inconveniences and, after all, it's better to get products to sell regardless of how they are packed, if safely, than to get no goods at all.

Jobs From OPM officials comes the estimate that war industries will need at least 3,000,000 additional workers in 1942. Present plans provide for placing all available workers into jobs where they can utilize past experience to best advantage. Workers' training programs will be expanded. Men from non-essential industries will be "drafted" when necessary in order to keep war materials' production at maximum capacity.

Calico For Indians 147 years ago six Indian nations in New York State made a peace treaty with the Great White Father which, among other things provided for an annual expenditure of $2,700 for calico for each tribe.

Last year each tribesman received 5 yards of calico, but this year they found themselves "short-changed" when only a three yard piece was given to each—a 40 percent reduction. The U. S. Government Agent explained that the price of cotton had gone up so that the yardage had to be cut down.

A prospective war budget of 150 billion dollars. A National debt of an equal amount in the offing. But the poor Indians, now a vanishing race but once owners of this continent, don't even get their paltry annual calico payment adjusted to the prevailing higher price levels. Do they need a John Lewis and his C.I.O.?

Every Minute Counts!

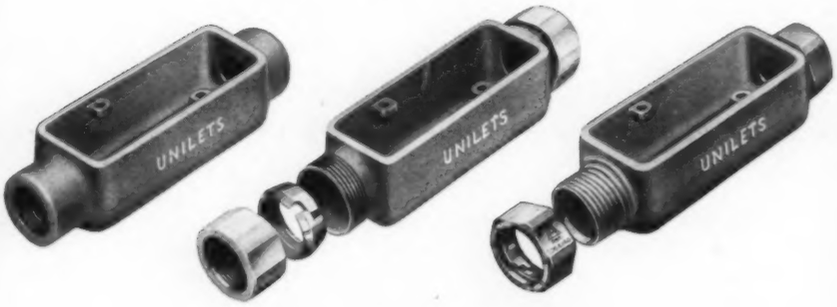
SAVE YOUR CUSTOMER'S TIME

by Selling APPLETON FITTINGS

—the COMPLETE Line

A FEW OF HUNDREDS
OF APPLETON TYPES

OUTLET AND SWITCH BOXES



THREADED AND NO-THREAD UNILETS

VAPOR-TIGHT LIGHTING FIXTURES

PLUGS AND
RECEPTACLES

EXPLOSION-PROOF AND DUST-TIGHT FITTINGS

A Type and Size for Every Requirement

● There's no time to lose on the vital construction jobs that must come *ahead* of maximum war production. You'll save valuable minutes and hours for your customers by selling Appleton fittings—first, because the *complete* Appleton line blankets every need; and, second, because Appleton manufacturing and distributing facilities are geared up to render unusual service, subject to priorities and allocations, during the period of emergency.

The unified control of Appleton fabricating plants and foundries insures a high degree of uniformity and exceptional quality throughout the vast Appleton line. Fitting bodies are smooth, rugged and expertly designed; additional time is saved on the job, through their ease of installation. They conform strictly to every code requirement.

Simplify your selling, build good will and repeat business, by suggesting Appleton fittings on every order! They're "STANDARD FOR BETTER WIRING!"

Sold Through Wholesalers

APPLETON ELECTRIC COMPANY

1734 WELLINGTON AVENUE • CHICAGO, ILLINOIS

Branch Offices: NEW YORK, 76 Ninth Avenue • DETROIT, 7310 Woodward Avenue • CLEVELAND, 824 Keith Bldg. • SAN FRANCISCO, 655 Minna Street • ST. LOUIS, 420 Frisco Bldg. • LOS ANGELES, 100 North Santa Fe Avenue • ATLANTA, 203 Luckie Street, N.W. BIRMINGHAM, 6 N. Twenty-first Street • MINNEAPOLIS, 305 Fifth Street, S. PITTSBURGH, 418 Bessemer Bldg.

Resident Representatives: Baltimore, Boston, Cincinnati, Dallas, Denver, Kansas City, Milwaukee, New Haven, New Orleans, Philadelphia, Seattle

APPLETON

CONDUIT FITTINGS • OUTLET AND SWITCH BOXES • EXPLOSION-PROOF FITTINGS • REELITES

Lamp Record More than 1¾ billion lamps were sold in 1941, according to Guy Bartlett of General Electric Co. That total was made up of 610 million miniature incandescents, 718 million large incandescents, and 22 million fluorescents.

This means that we were 3 millions off when in September 1941 we forecast sales of 19 million fluorescents for 1941. And—the way fluorescents are rolling we are going to be short for several years to come. Nobody is going to stop those "F" lamps from piling up new sales records.

P-100 That's the official designation of the electrical wholesaler's new business charter which was issued December 18th by Donald M. Nelson, Director of SPAB, to replace P-22 which it revokes. Important changes, favorable to the wholesaler, are included in this new P-100 set-up.

Elsewhere in this issue Preference Rating Order P-100 is reprinted IN FULL together with pertinent interpretations direct from O.P.M. Every wholesaler should be fully conversant with these new provisions.

Hoarding The axe is almost ready to fall on those who have piled up stocks of critical raw materials far beyond their immediate needs. Where request for voluntary surrender fails, requisitioning will be resorted to because authorities are determined to have control. Thereafter allocations can be made more intelligently and civilian industries may definitely benefit.

Price Control Wholesalers and jobbers of iron and steel have just received "ceiling" prices, handed down by Price Administrator Henderson. Previously the manufacturers of steel products had been obliged to sell at fixed price levels while wholesalers could charge what the traffic would bear.

Now that's out and sky-rocketing prices, caused by excessive mark-ups of distributors, are decidedly taboo. Similar "ceiling" price decrees must be expected on certain lines handled by electrical wholesalers and it's certain that things will not stop with wholesalers if retailers should jack up their mark-ups too far.

Canada, on December 1, 1941, put into effect a price control system under which retail prices must not be higher than those at which similar goods were sold during the period September 15th to October 11th, 1941. Manufacturers and middlemen are allowed to vary their prices but must not shift the bulk of the "squeeze" to the retailer.

That plan may serve as pattern for our Congress. Big point is, that price control is something we have to expect to live with, at least until this war is won.

Ho-Hum College girls don't like to have sergeants or higher ranking uniformed males cut in, if they are dancing with the boy of their dreams who happens to be a private. That's why they demand revision of military rules of etiquette which provides that a private must not "cut in" on a superior. Thus runs OPM's official release No. 1825.

Wage and Hour Two interesting "rulings" have been announced by the Wage and Hour Division of the U. S. Department of Labor.

Time spent by employees on the premises of an employer during black-outs or air-raid alarms *where no work is done* need not be compensated for as "hours worked."

While workers cannot waive their rights to time and a half for overtime after 40 hours, they may *voluntarily* accept straight time in cash and the balance in defense bonds or stamps.

1942 Glimpses Since "Pearl Harbor", forecasts for 1942 have been revised so frantically—always upwards—that we hesitate to publish all that have reached us. But—here are two that show the trend:

Machine tool production, fundamental to all war production, is expected in 1942 to top its 1941 record by 50 percent which means almost 13 times the volume of an average pre-war year.

Construction of all kinds, which for 1942 was expected to taper off from the record 1941 total, now is headed for a new all-time record, may top previous peak by nearly $1 billion and exceed $11,250,000,000.

EDITOR

Distributor salesmen selling G-E Wiring Materials can offer a wide variety of wiring materials to serve all types of lighting.

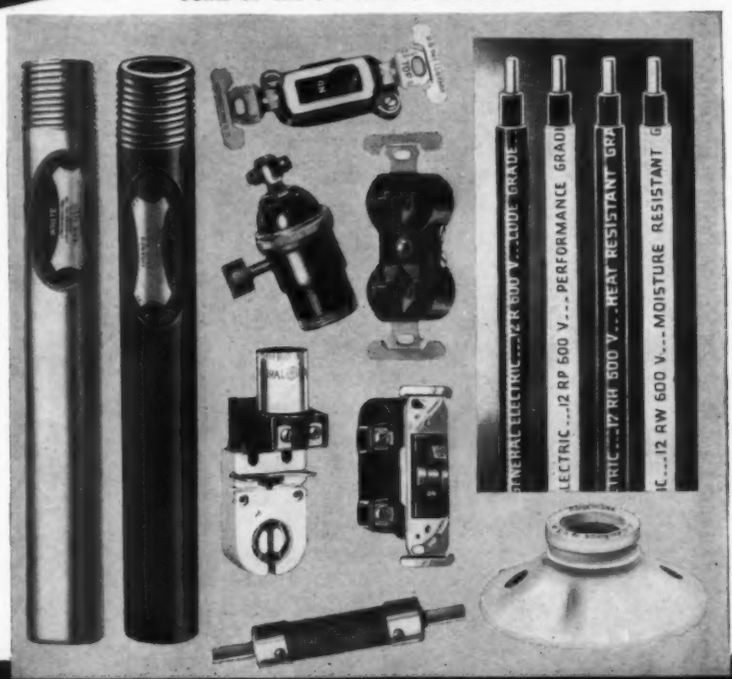
THE PROPER WIRING MATERIALS TO SERVE *Good Lighting*

Good lighting, as you know, is helped by adequate wiring composed of high quality, long-lasting wiring materials. Therefore, distributor salesmen selling G-E wiring materials have an advantage. Not only is the G-E line the most complete on the market, but G-E wiring materials are recognized everywhere for their uniformly high quality.

The choice of materials is wide—white conduit, black conduit, E.M.T., Fiberduct, Types R, RP, RH and RW building wires, all-rubber cords, Deltabeston asbestos-insulated fixture wire, mercury switches, standard switches, sockets, outlets, Fluorescent starters, fuses, branch-circuit circuit breakers, etc.

With this large line, distributor salesmen are able to offer their lighting customers suitable, quality wiring materials to serve all types of lighting. Wiring Materials Section, General Electric Company, Appliance and Merchandise Department, Bridgeport, Conn.

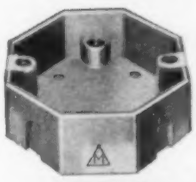
SOME OF THE G-E WIRING MATERIALS TO SERVE LIGHTING



GENERAL ELECTRIC

The Efficiency of PORCELAIN WIRING SYSTEMS IS BEING REALIZED NOW MORE THAN EVER BEFORE

Bull Dog REGISTERED TRADE MARK
Look for this Trade Mark



OUTLET BOXES

Glazed and unglazed styles conforming to all existing standards of dimensions, spacing, position of knockout holes, and mounting screws. High mechanical and electrical efficiency.

SWITCH BOXES

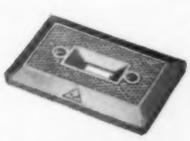
Insure greater safety in wiring and the elimination of all grounding hazards. Made of best quality white porcelain. Metal inserts are placed in two holes of the switch boxes for receiving screws of standard switches, plugs, outlets, etc. Knockouts for single wires, also for cables. Specify and use them.

STANDARD TUBES

In sizes ½ to 48 inches, 5/16- to 3-inch diameter in following types: unglazed, glazed split, floor, split-floor, headless, curved end, crossover split, and crossover. Diameters all uniform both inside and outside.

KNOBS

Cement coated—nail—genuine leather-washer — code standard. They don't chip when driven in and they stay in place.



TOGGLE SWITCH PLATE

All porcelain with beveled edge and decorative pattern on face.

CLEATS

Standard one, two, and three-wire types.

★ There is an increase in the use of Porcelain Wiring Systems—porcelain is available—porcelain offers everything in dependability, permanency, safety, and installation ease.

The availability of porcelain is giving contractors opportunity to go after wiring jobs practically as in normal times—the little metal used in these porcelain systems is hardly enough to cause any material shortage.

Therefore, Wholesalers, in looking for products for immediate sales, will find it advantageous to be well stocked with ILLINOIS all-porcelain wiring units which combine to make systems that meet every requirement most modernly.

Iron-Clad Wholesalers' Policy

The original policy of this organization was 100% wholesaling and the distribution of Illinois Porcelain Products has never varied from this strict policy of selling only through legitimate channels.

Standardize on

ILLINOIS

FOR TOP QUALITY AND EXACT DIMENSIONS ——

CENTRAL LOCATION INSURES QUICK DELIVERY anywhere in U.S.

ILLINOIS ELECTRIC PORCELAIN CO.
MACOMB, ILLINOIS

Washington STRAWS

By "The Man with the Panama Hat"

WAR Too much of official Washington already was so completely on a war basis that Japan's unprovoked treachery did no more than convert our active cooperation into extremely more active participation—plus intensive speeding up of our war effort all along the line.

Also—It gave us a slogan that will echo down the ages as the battle cry of an aroused democracy. Every government news release has been carrying "REMEMBER PEARL HARBOR" at its "mast head." There are no longer any isolationists or pacifists in Congress. There is everywhere full realization that we have a stupendous task before us, but there is also grim determination to see it through to the finish, no matter what the cost, and—nothing less than VICTORY—final and complete, will do.

P-100 Preference Rating Order P-100, that's the official designation of the new plan just announced by the OPM, Division of Priorities, to take the place of the P-22 Repair and Maintenance Order. It is intended to eliminate some of the "bugs" found in previous plans and particularly it simplifies procedure as well as liberalizes certain provisions.

Every wholesaler and his salesmen should study this P-100 plan carefully and then organize for complete and honest compliance with its rules. With the country actually at war there will be stricter enforcement than even before and little patience with violators.

(The official text of the P-100 order IN FULL, with explanations from OPM's Division of Priorities will be found on Pages 59–60b of this issue. The Editor.)

WHAT PRICE VICTORY The OPM announced that as of December 26, 1941, the total of our authorized program for war expenditure was $78,212,000,000.

Of that huge sum only $47,726,000,000 was already covered by committments, leaving roughly $30½ Billion yet to be covered by additional contracts.

All that when we have only just begun to fight, so—wait 'till we really get going BUT—when you realize whom and what we are fighting, Victory will seem cheap at any price.

CONVERTING INDUSTRIES Rapid progress is being made in studies, aimed at speedy and appropriate conversion of civilian goods industries to war production. In a report just released by the Deputy Director of OPM's Contract Distribution Division 15 durable goods industries are cited as capable of conversion to produce annually $3,900,000,000 worth of war materials.

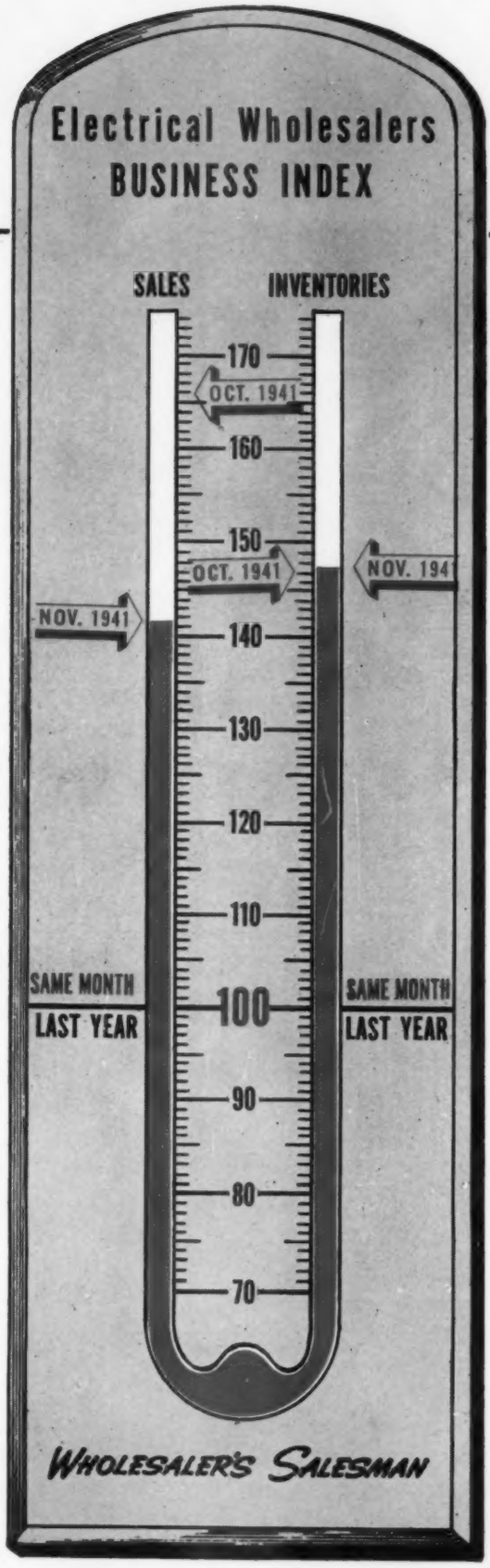
For instance, while producing 50 percent of the 1939 output of their regular lines household appliance manufacturers could turn out in addition $36 Millions worth of bombs and aircraft components; refrigerator and air conditioning plants could produce 481 millions Dollars worth of engine parts, tanks, various other components; lighting fixture and wiring devices makers would account for 122 million Dollars of ammunition components.

That gives an idea of what is ahead: 50 percent of 1939 output for civilian use. The balance for war—and if the war lasts very long it will take practically all of our productive capacity, directly or indirectly.

WAR AND BUSINESS Take it for granted that as quickly as adequate plans can be devised, the government will have almost complete control of the business of this country with the President in the drivers seat as Commander in Chief. You will operate your own business, but under license from Uncle Sam. That in fact is the only way in which we can hope to win this total war, namely, through total control of the economic life of the nation.

Bright spot on the horizon is, that Government is not just thinking of winning on the battle fronts of a world war but has many able men at work planning for the post-war period when business must be turned back to operate "on its own," when business must be prepared to maintain its position on the economic battle fronts of the world.

Meanwhile—to Remember Pearl Harbor means to remember that the first order of business for our government and all business is TO WIN THIS WAR. The more quickly every business fits itself into the pattern of control as it will be announced by the government, the more efficiently can this war be prosecuted and the more quickly will the victory be ours.



SOURCE These monthly reports covering the business activities of electrical wholesalers throughout the United States are collected and compiled by The Bureau of the Census and the Bureau of Foreign and Domestic Commerce of the U. S. Department of Commerce, and underwritten in part by WHOLESALER'S SALESMAN—A McGraw-Hill Publication.

Business Index
For the Month of November 1941

SALES With 324 electrical wholesalers from throughout the United States submitting reports, sales for the month of November showed a decline of 14 percent from the previous monh, but they were 41 percent higher than in November 1940. While those percentage figures represent rather decided declines from recent scores, they should not be considered as justifying any alarming conclusions.

It must be recalled that, although September 1941, with a 90 percent gain over the same month of 1940, scored an all-time record for year to year gains, actually it no more than showed approximately the same volume as did the immediately preceding months of the plateau level which began with May. In fact, the November decline of 14 percent from October, and October's loss of 4 points from the 1941 May-September plateau level, merely brings the November sales back to the approximate level of the Spring 1941 sales, which ranged from 53 to 65 percent above the same month of 1940.

However, performance during the early months of 1941 had to be compared with a 1940 period which ANTE-DATED the defense program and therefore sales could not be affected by it. In contrast, the last quarter of 1940, with which comparisons now are being made, definitely reflected the impact of defense activities in unseasonable increasing sales gains. In fact, that impact began to show definitely with October 1940 sales. Then it gained in strength almost uninterruptedly at a surprisingly steady pace for 7 months, when it reached its height with the 5-month plateau period.

Thus it appears only reasonable that comparisons with previous years should henceforth reflect lower gains. In fact, it is probable that early in 1942 the sales figures will begin to show losses when matched with the previous year, as comparisons then will be with what probably will stand as the peak of the whole period.

INVENTORIES Holiday stocks probably accounted for the fact that November inventories held above levels of previous months and scored the highest gain over the same month of last year.

COLLECTIONS The number of firms reporting November collections and accounts receivable was insufficient for detailed analysis. Those received reflected lower totals, a collection percentage of around 71 and outstanding accounts at 42 days.

What a World of Differe

IN SELLING

"INCH-MARKED"

PAT. APPLIED FOR

ELECTRUNITE Steeltube

REG. U. S. PAT. OFF.

UNDERWRITERS' LABORATORIES, INC. INSPECTED RIGID ELECTRUNITE STEELTUBES REG. U.S. PAT. OFF. 2-48 ELECTRICAL METALLIC TUBING

● Just a row of little marks along one side of the tubing — but how much easier and more accurate they make installation — and how much they increase the sales appeal of "Inch-Marked" ELECTRUNITE STEELTUBES.

They're simple and practical — because they provide a continuous foot-rule on every length of tubing.

When a workman wants to make a cut or bend, the distance he needs is already measured for him — *accurately.* There is no slipping of rule or pencil — no juggling of a flat rule on a round surface while making a pencil mark.

Cut pieces and bends that always fit can be made easily and quickly. There is less chance for error — no need for guesswork — consequently, less waste of material.

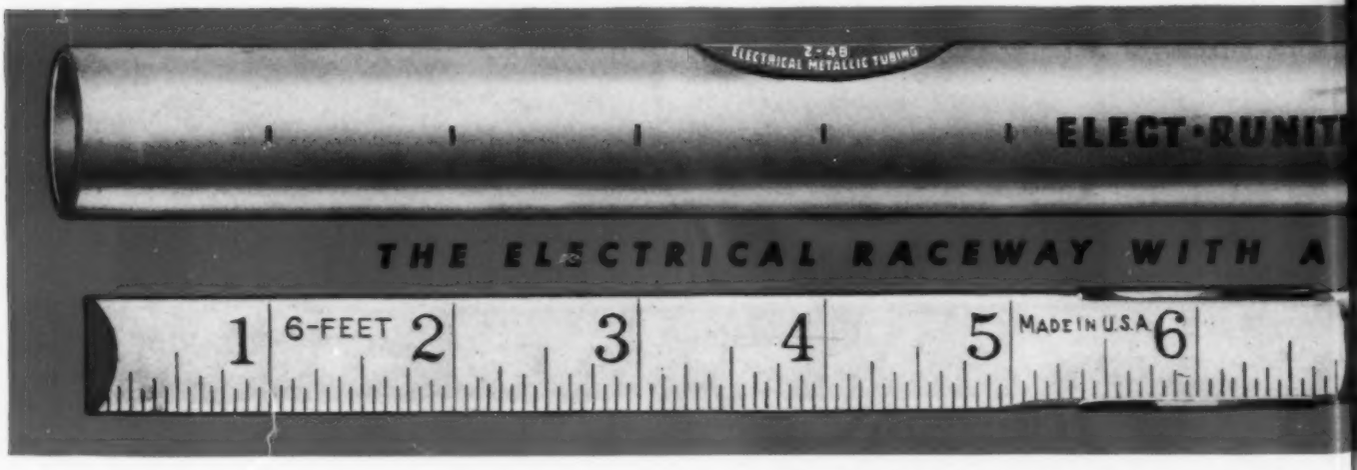
"Inch-Marking" is an exclusive feature of ELECTRUNITE STEELTUBES — as also are t ELECTRUNITE Bender with built-in directions a the bending instruction tags supplied with eve shipment of tubing.

Mention "Inch-Marking" when you talk your customers and prospective buyers — and crease your sales of E. M. T. If they read *Electri Contracting* magazine, they know about t newest development in electrical raceways. It h been advertised consistently since it was fi introduced.

And remember this: When you handle "Inc Marked" ELECTRUNITE STEELTUBES, you are p tected by the rigid policy of selling ONLY throu ELECTRUNITE Distributors.

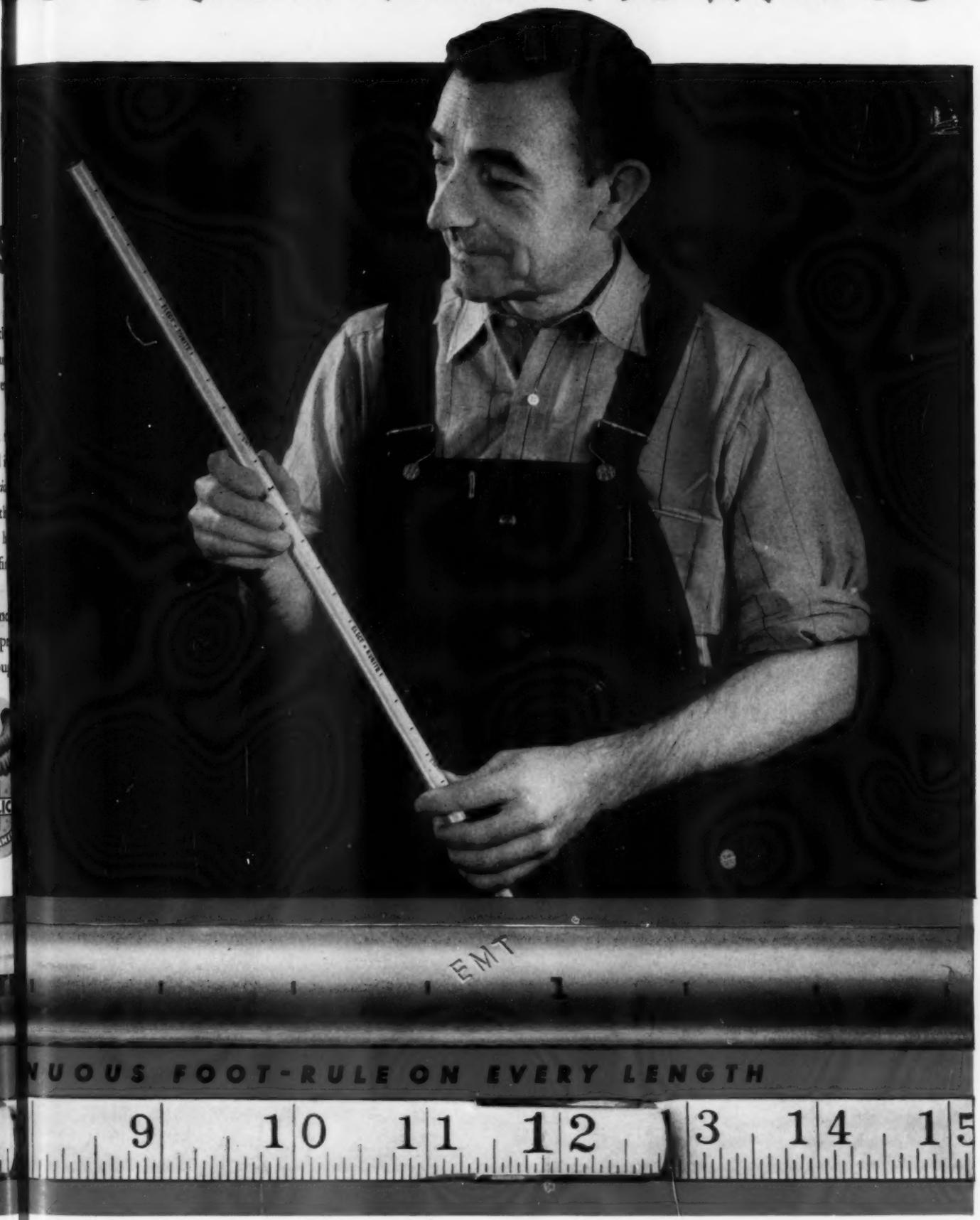
Use descriptive folders in your sales work. We'll supply them at your request. Steel and Tubes Division, Republic Steel Corporation, Cleveland, Ohio.

REPUBLIC STEEL DEFENSE FOR AM



PRINT IN BIN

...se a FEW MARKS Make



IN BINDING

WHOLESALER'S SALESMAN BUSINESS INDEX

REGIONAL ANALYSIS

FIGURES of regional performance during November 1941 show more complete uniformity in trend than at any time in recent months. In February 1941, all but two regions showed good to spectacular sales gains over the previous month. The March to October months recorded widely varying regional sales performance. Now, for November, all but one region showed declines from the previous month, ranging from a few points to twenty-eight percent.

Similarly when November 1941 regional sales figures are compared with the same month of 1940 they show less variance than did those of recent months. However, it is worthy of note that region 11 (Ohio) seems to resist successfully the trends noted elsewhere, in that it is the one region in the country that continues to score sales gains over the plateau months level.

Study of sales performance and inventory records of specific regions over a period of several months discloses that the "feast-famine-feast" cycle is rapidly becoming an operating characteristic throughout the country. Even the best organized wholesalers seem unable to maintain a semblance of balance between incoming stocks and sales. During one month, certain lines will pile in at a rate that taxes available warehousing facilities, and then for many weeks or even months the same manufacturers don't ship a single item.

The fact that inventory figures in practically every region have reflected substantial accumulation for the last two months must be charged chiefly to incoming appliances and holiday goods. Not until January figures are available will it be possible to again get a fair picture of wholesalers' stocks of regular lines.

NOVEMBER, 1941

Figures in this table apply to regions as outlined and numbered on map above

SALES November, 1941 Compared in % with		Trading Region (See Map)	INVENTORIES November, 1941 Compared in % with	
October 1941	November 1940		October 1941	November 1940
75	134	1	115	156
90	125	2	111	138
82	135	3	107	157
78	129	4	113	150
86	133	5	107	124
88	142	6	110	125
92	130	7	102	147
84	123	8	110	164
93	159	9	112	138
84	139	10	106	149
103	180	11	103	157
87	142	12	103	143
98	124	13	97	125
88	123	14	111	143
72	128	15	115	156
97	151	16	106	170
93	145	17	113	144
76	125	18	129	160
81	150	19	104	181
77	158	20	110	109
99	163	21	125	115
81	154	22	111	140
86	**141**	For **U. S. A.**	**108**	**148**

Wholesaler's Salesman NEWS

REA to Complete Some Projects; Sees New Farm Equipment Market

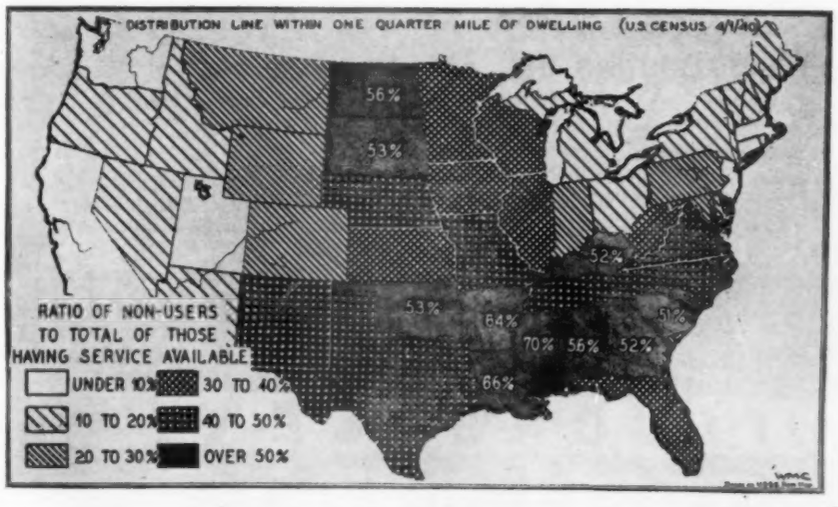
SPAB grants copper for 160 of 360 projects; others to be studied. New lines get money but can't interfere with war effort. Rising farm incomes indicate new opportunities in neglected farm electrical equipment market

FEAR that materials shortage would stop current REA activity and curtail the electrical wholesaler's opportunity for selling the growing market for farm electrical equipment has passed, momentarily at least. This because a SPAB allocation of copper to complete REA projects more than 40 percent built, and a $6,284,500 allotment to finance the excess costs, will result in the opening of those new markets along the high lines of at least 160 of the 360 projects now underway, while the balance are to be studied prior to another review in three months.

Wholesalers will find it profitable to cultivate not only the markets being created along the lines now being completed, but also the other lines built since 1936. The percentage of electrified farms since 1936 has increased from 11 per cent to 35 percent, and during that period 1,382,196 farms were wired. However, it should be remembered that during most of that period our farm economy was merely held together by lenient mortgagers and Federal Farm Benefits. Today the farmer on both the old and the new power lines has an income rapidly approaching the 1929 high and he is apparently headed for the all-time heights of World War I. That is the key to a market that all wholesalers serving a rural district should consider, for high prices mean quick and heavy spending.

The biggest field for the wholesaler to consider at this time is the farm electrical equipment market. An REA survey through 33 states showed the following unbalance in saturation of farm electrical equipment against home appliances.

Product	Saturation in %
Radio receiving set..	89.7
Hand iron.....	85.3
Washing machine....	55.0
Refrigerator	41.8
Vacuum cleaner.....	21.0
Electric water pump..	18.4
Utility farm motor...	16.5
Hot plate.....	15.2
Poultry lighting.....	10.5
Cream separator.....	8.2
Electric range.....	4.4
Milk cooler.....	1.1



This REA map is the wholesalers key to a probable new farm market.

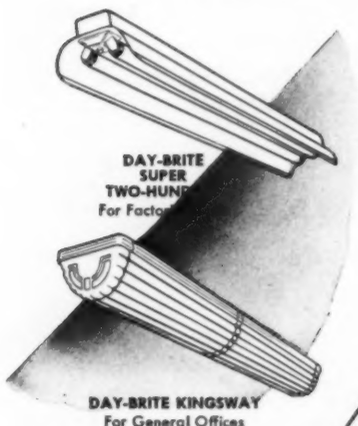
Three important factors are selling the farmer on farm electrical equipment: 1. High prices, 2. An unlimited market for all he can produce, 3. A shortage of farm labor. Electrical equipment can enable him to save time and increase efficiency and productivity. It also provides machine power to replace unavailable man power.

The potential in amount of electrical equipment sales for each farm is a high, unreachable figure, but the current flow of farm prosperity should see a vast increase in installations of such time and money saving equipment as—poultry lighting, cream separators, milk coolers, incubators, brooders, power pumps and water systems, corn shellers, utility motors, electrified machine and wood shops, water heaters, etc.

Another market that should spring

A 24-HOUR DAY FOR THE U.S.A.

DAY-BRITE LITEWAY
For Engineering Depts.



DAY-BRITE KINGSWAY
For General Offices

ON the front line of Victory, light makes right — 24 hours a day! Seeing better means doing better! And, that's where Day-Brite Fixtures help — they utilize the higher efficiency of fluorescent lighting . . . Backed by 18 years' specialized lighting experience, they are designed and engineered to lessen eye fatigue and assure the clearer vision necessary for greater accuracy, closer tolerances, quantity output and fewer rejects . . . DAY-BRITE IS THE LIGHT LINE OF VICTORY! . . . Consult Day-Brite Engineering Representatives, located in principal cities . . . Nationally distributed through all Leading Electrical Supply Houses.

DAY-BRITE LIGHTING, INC., 5471 Bulwer Ave., St. Louis, Mo.

Whatever you need in Fluorescent Fixtures is available in the Complete Day-Brite Line! A large, modern plant geared to high-speed, accurate, quantity production every step of the way. Send for catalogs.

DayBrite Rivals Daylight

Adds Defense Hours!

THE COMPLETE LINE OF FLUORESCENT LIGHTING FIXTURES

Day Brite FLUORESCENT FIXTURES

33

into life now that farm income is up is shown by the REA in a survey drawn from the 1940 census showing the number of farms not using electricity although they are situated within one-quarter mile of a distribution line. These farms, plus the 179,000 farms now lighted by self-contained home plants, become a marginal group in the market for farm electrical equipment, appliances and the necessary installation equipment. (See chart.)

To Head Conduit Sales for Steel and Tubes

CLEVELAND—On January 1, H. R. Coward became the manager of conduit sales for the Steel and Tubes Division of Republic Steel Corp. with headquarters in Cleveland. He succeeds H. H. Benfield, who recently joined BullDog Electric Products Company in New York.

Mr. Coward's early experience included terms as sales representative of the Crouse-Hinds Company in Detroit, Cleveland and Boston territories and representation of Harvey Hubbell, Inc. in Detroit. In 1932, he joined Steel and Tubes, working out of Kansas City, Mo., and in 1937 he was moved to the company's Chicago office as assistant midwest sales manager in charge of the company's conduit sales.

He was born in West Pittston, Pa., received his early schooling in the east and his college training at Antioch college.

***3000-WATT MERCURY VAPOR LAMP** in a refrigerator at the Lamp Research Laboratories of Westinghouse at Bloomfield, N. J., where it is receiving simulated winter winds and sub-zero weather in preparation for its expected use as light source in the torch of the Statue of Liberty. S. G. Hibben, director of applied lighting, is shown braving the test-chamber weather to examine this new source of high intensity industrial lighting. General Electric as well as Westinghouse announced development of a lamp of this type.*

***APPROPRIATE SETTING** for a lighting conference is this sales room of H. H. Roberts & Co., Inc., New York, where the sales force of C. & H. Menzer, Inc., are shown meeting with members of the Roberts organization to discuss sales methods for the coming year. Engineered lighting was emphasized, along with a discussion of Guth fluorescent units. In the center background is the Roberts organization, the rest are the Menzer boys.*

3000-w Mercury Lamp Available For War Plant Installations

General Electric and Westinghouse announce development of a single high intensity mercury vapor lamp eight times more powerful than previous MV lamps.

AVAILABLE for distribution in January will be a new 3000-watt mercury vapor lamp, designed primarily for high intensity lighting in industrial plants, which has come simultaneously from the engineering laboratories of General Electric and Westinghouse. It is a 55-in. tubular lamp with a 120,000 lumen rating, making it seven to eight times more powerful than the present largest lamp of its kind, although it is only four times as long.

Except for the lack of a powdered inner surface, the new lamp resembles the 100-watt fluorescent lamp. Its operating principle, the passing of an electric arc through a tube containing argon gas and free mercury under high pressure, is the same as that of the smaller mercury vapor lamps.

This new lamp will be produced for what should be a ready market in plants where high bay installations or lofty mounting heights of luminaires are required. For example, steel mills, foundries, certain aircraft factories, erection shops, ship yards, etc., will find them exceedingly useful. Added selling points supplementing the advantages of this new lamp in high lumen output are the enabling of industry to speed production of war materials, the reducing of eye fatigue, the lowering of preventable accidents and the lessening of materials spoilages.

Trial installations by General Electric's Nela Park engineers show that these 3000-watt lamps in good reflectors and on conventional spacing centers can provide more than 50 footcandles evenly over the working plane. Compared with filament light sources, the large mercury vapor lamp generates more than twice as much light per watt, produces about one-third the radiant heat per footcandle, permits higher levels of illumination from present wiring, and emits a light both actually and psychologically cooler.

Industry Gets First View Of U.R.C. Standard Luminaire

Utilities Research Commission's new design specifications for fluorescent fixtures first featured by Mitchell Manufacturing Company in "U.R.C. Research Luminaire" just announced to the trade

THE new, low-cost, shielded fluorescent fixture design, developed by the Utilities Research Commission as a standard available to all manufacturers of luminaires, is getting its major public launching in the "U.R.C. Research Luminaire" just announced by the Mitchell Manufacturing Company of Chicago.

The U.R.C. Research Luminaire design specifications were produced by a committee of engineers appointed to develop and perfect a commercial fixture design that would avoid objectionable contrasts between ceiling and light source, and would provide both high efficiency and an even distribution of light over the working area. In working toward this objective, the engineers spent two years constructing and testing every conceivable disposition of lamps and reflectors and types of shielding.

The result is a fixture design which the U.R.C. heralds as being in fluorescent lighting comparable to the "I.E.S." lamp standards, which are well known in household lighting.

The design of the new Mitchell "Research" Luminaire illustrates the features of the standards set by the Utilities Research Commission. It utilizes four 40-watt fluorescent lamps enclosed behind a bottom panel of double-strength prismatic ribbed glass with a transmission factor of not less than 85 percent, and side panels, of double-strength ceramic coated ribbed glass with a 35 percent transmission factor. The chassis is constructed of No. 18 U.S.S.G., secured to the body by two wing nuts. Knockouts are provided to permit either ceiling or pendant mounting and to allow for connections to ceiling outlets. The surfaces are coated with high reflecting white enamel.

End plates are 20 gauge steel finished in satin aluminum with knockouts to provide a method of locking fixtures together in a single row. Two types of track mounting are furnished with each luminaire, one for single mounting and the other for continuous row installation.

Also to conform with the U.R.C. specifications, the Mitchell Luminaire has the latest type two-lamp ballasts designed to operate the lamps out of phase and with a power factor of not less than 90 percent. Starter switches are standard types.

Graybar's 1942 Line-up

NEWLY ELECTED officers of the Graybar Electric Company are (left to right) A. H. Nicoll, president; G. F. Hessler, D. H. O'Brien and E. W. Cashman, vice presidents; F. A. Ketcham, present president (extreme right) who becomes chairman of the board. The following field vice presidents continue in that capacity—W. P. Hoagland, Chicago; W. J. Drury, New York; A. L. Hallstrom, Philadelphia.

From Strip Tease to FULL DRESS

GLASS Helps Fluorescents Graduate

Combining utilitarian and aesthetic advantages, glass gives added beauty to fluorescent lighting installations, conserves essential raw materials

ALERT salesmen for electrical wholesalers, as well as progressive wholesalers and manufacturers of lighting equipment, are becoming more and more aware of the definite trend toward the greater use of glass in modern illumination.

Glass has been considered traditionally as the natural garment for light.

Crystal windbreaks shielded the tallow candle without obscuring its feeble light. Clear chimneys performed a similar function for kerosene lamps. Somewhat more decorative glass globes became the fashion in the "gas light era," and the "gay glitter" of the "naughty nineties," with increasing use of carbon filament lamps, found glass of ornate form adorning chandeliers.

Then came lamps with higher wattages thanks to tungsten filaments, and they necessitated the development of suitable opalescent glass garments which would modify and diffuse brighter light sources.

When the song of light once more increased its range several octaves as gas filled lamps made their debut, glass chemists again went to work in search of glass with less absorption, greater diffusion and lower surface brightness, and that period of research resulted in the better grades of opal glass that are so widely used today.

But new problems arose when the current "forties" ushered in the fluorescent lamps, the light in tubes that are from nine to sixty inches long. That new light was accepted as a challenge to the art of glassmaking which the glass makers have accepted—and met, so that today the glass couturiers of light offer a variety of svelte creations which deftly enhance the slender beauty of fluorescent luminaires.

Thus, with suitable "garments of glass" available for every modern light source, opportunities for the sale of illuminating glassware are unquestionably greater today than at any time in the past decade.

For instance, practically all buildings being erected at training stations and camps for the armed forces, require good lighting. There appear to be three major considerations in the ultimate selection of lighting equipment. It must be readily available, quickly installed, and efficient in performance. These conditions bring to the fore incandes-

cent lamps with enclosing globes or bowls fabricated from the better types of opacified glass. Enclosing globes of this type of glass, with even diffusion, low absorption and relatively low surface brightness are being used for "general diffuse" lighting in increasing quantities.

Efficient semi-indirect lighting may also be obtained at relatively low installation and maintenance costs by the use of unilayer enclosing globes. These globes have upper portions clear and lower portions opacified to provide high reflection and to direct a major portion of the light upward.

Luminous indirect lighting is obtained by glass bowls. These are very efficient, exceptionally low in surface brightness, afford carefully engineered illumination and present a most attractive appearance.

Furthermore, with the shortage of certain metals in defense industries becoming steadily more acute, illuminating glassware manufacturers are designing canopies and holders of glass to replace certain parts now made of metal. Carefully engineered glass parts for commercial types of fixtures will soon make their appearance on the market.

While much of the current interest in glass involves emergency construction projects employing commercial types of lighting, there exists also, however, a very large potential market for lighting less directly involved in the National Defense program. In this lighting, or shall we say re-lighting, glass again plays a major part.

When fluorescent lamps were first introduced, glass manufactures were obviously unprepared for so radical a departure from the conventional garb of the incandescent lamp. In appearance, therefore, the earlier fluorescent fixtures were sadly lacking in proper costuming. Some wardrobes were hastily improvised from very simple types of glass, most, however, were like the "strip tease" artist, quite devoid of proper attire.

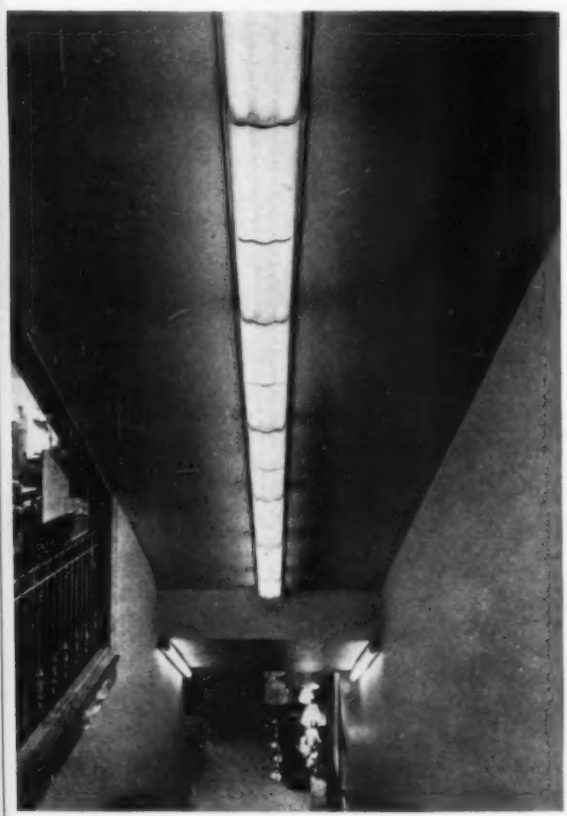
Lighting specialists recognized the need for utilitarian, as well as aesthetic, enclosures for this new and impressive light source. Glass technicians were already spending long hours in their laboratories developing glass which would meet the exacting requirements of the fluorescent lamp. They had to prevent any major change in the color value of the bare lamp when the light was diffused through a glass shield. They had to engineer glass for long and lean moulded forms, that would be harmonious with the basic design of lamp and fixture. It had to consist of as few pieces as possible, preferably one single shield, and permit simple assembly with the metal portions of the complete fixture.

The present metal shortage necessitated still further research. This resulted in the production of glass end-caps of proper sizes to fit glass shields and to replace metal caps formerly used. These glass caps permit the modern fluorescent fixture of latest design to present an outstandingly attractive appearance and also to perform efficiently, and thereby help moulded glass forms to take their traditional place as garments for light.

In the residential field, glass has regained a preeminent position. No other product used as a garment for light can so readily achieve the desired charm, and some of the newer fixtures combine the sparkle of crystal with delicacy of color in delightfully decorative effects. Of even greater importance is the fact that color and other diffusive agents can be artistically and permanently employed in the fabrication of glass to conserve eyesight and eliminate uncomfortable glare.

In the residential field also, glass has stepped into the breech caused by the current metal shortage. Interesting effects are now obtained by the use of glass bobesches, breaks, columns and crystals in the construction of lighting fixtures, instead of parts formerly made of metal. Furthermore glass canopies and socket covers for residential fixtures will soon be available to re-

A stairway gets full lighting, together with streamlined appearance, from fluorescents mounted in continuous trough fixtures which Lumalite Products Co. make from Phoenix Glass.



Smart modernity in a men's clothing store is emphasized by fluorescent lights housed in fixtures for which glass was designed by the Gleason-Tiebout Glass Co. Emphasis is on full lighting with no glare.

Unique arrangement of fixtures combines appearance with comfortable seeing in the grocery store above. Lumalite Products Co. uses Phoenix glass. Below, for recessed ceiling fixtures, Kliegl Bros. employed Corning 12 in. square colouvered fresnel lenses to make effective restaurant lighting.

place those of metal. In such parts, unusual and striking effects have been obtained through the use of glass.

An impressive statement was made recently by a well known news commentator. He marveled at the efficiency of artificial lighting in an important defense plant. In anticipation of possible "black outs" this plant contained neither windows nor skylights, yet the finest figures on delicate instruments could be read clearly and easily. In that building, defense work could be maintained at a maximum even during blackout periods. Glass had played an important part in that installation because rays of light were being bent and directed with maximum effectiveness where most required, by means of scientific lens design.

To-day the fresnel principle is being widely utilized in the manufacture of lens panels. This means that a single panel of glass can now be produced which will extend over the entire sixty inch length of a one hundred watt fluorescent lamp. Thus relatively little metal is required for the proper installation of that type of lens lighting.

Silvered glass reflectors, many of very large size, are now making their appearance to replace those formerly made of certain metals which are now almost impossible to obtain.

In the field of lamps, glass forms the "heart of the I.E.S. lamp." Beautifully designed glass torcheres are constantly growing in popularity. There has been an increasing use of glass for bases, stems, columns, breaks, candle cups, bobesches, crystals and shades in the production of novelty and occasional lamps. Now bases for large floor lamps are being made of glass. They replace those of bronze, copper and other unobtainable metals.

All these new products, and refinements of older ones, are designed for eventual production from raw materials not otherwise required for defense products, because glass chemists are developing formulae for the illuminating glassware field which will not require the major use of critical raw materials. This program, it is hoped, will permit an unlimited supply of glass for all the requirements of the lighting industry.

The historical background of glass has been romantic and picturesque as well as utilitarian from its earliest appearance to the present era and thus it affords not merely an attractive sales story, but opens up important sales and profit opportunities for the wholesaler.

In conclusion, here are just a few of the advantages of glassware from the commercial angle of the salesman who is promoting the sale of good lighting—

Availability—Major use of raw materials not affected by defense work.

Versatility—Readily adaptable to varied forms of lighting.

Beauty—A perfect garment for light.

Permanence—Low depreciation under normal maintenance.

Utility—High functional qualifications.

Cost—Comparable with other products.

From all this it must become evident that the sale of illuminating glassware to-day offers new and interesting and lucrative opportunities to all those representatives of electrical wholesalers who handle lighting equipment and promote the cause of good lighting.

Black Out Competition Throughout '42

with HYGRADE *Fluorescent!*

There's no doubting the importance—the vast superiority of new, modern fluorescent lighting in the all-out, all-day, all-night war efforts of American industry today.

And by selling HYGRADE Fluorescent lighting equipment, you can put yourself *in a unique position* to be a key factor in speeding up American production.

Because *we ourselves* enjoy a unique position in the fluorescent lighting field—a nationwide reputation for EVERYTHING *in fluorescent—at its finest!*

What does this mean to you?

It means that HYGRADE can equip you to do an all-round *better* lighting job—*a complete lighting job—with every unit guaranteed.*

By selling HYGRADE fluorescent lighting equipment, you become not just a "lamp salesman" or a "Fixture salesman," but *an authority on finer fluorescent lighting*—and have the tools at your command to land *bigger, more profitable* installations!

Tremendous advantages

For HYGRADE—backed by 40 years experience in lighting—*pioneered* in the field of fluorescent—has *exclusive patents* in fluorescent—has more *experience* in *fluorescent — builds more quality in all fluorescent equipment* . . . and as a result of powerful national advertising, *your prospects know these facts!*

But don't delay!

Act right now to cash in on the fat profit-opportunities that *exist right now* — all around you! — with HYGRADE Fluorescent Lighting Equipment! *Write today* for complete information.

•

HYGRADE SYLVANIA CORPORATION
Dep't. WS-1, Salem, Mass., Est. 1901

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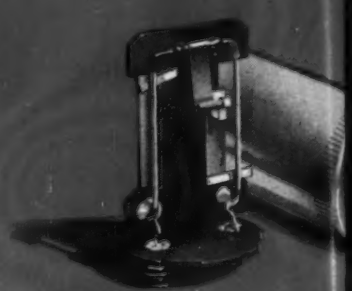
Also makers of HYGRADE Incandescent Lamps and Sylvania Radio Tubes

Brilliantly illuminated section of Sperry Gyroscope Company plant, Brooklyn,

HYGRADE—

Everything in Fluorescent at its Finest!

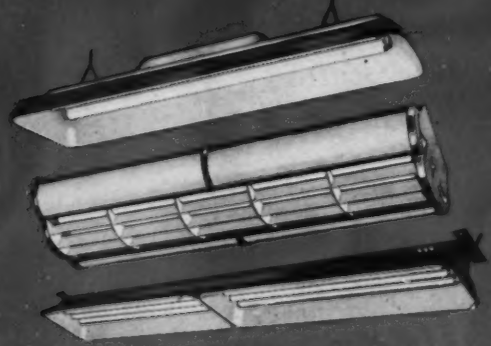


World's finest fluorescent lamp starter. Assures *proper pre-heating*, positive *starting* and *re-starting*, all-round better *performance* on Mirastat starters.

NEARLY 100 PATENTS PROTECT HYGRADE LIGHTING PRODUCTS! Extraordinary lighting efficiencies are obtained in Hygrade Fluorescent Lamps by tuning the ultra-violet energy to the 2537 Angstrom Units wave length effective in causing the porous film (Hygrade Patent No. 2,096,693) to generate light as shown in Hygrade-controlled Patent No. 2,126,787. Hygrade products are exclusively protected by a large number of other patents, including No. 2,201,817 and No. 1,982,821.

Hygrade Miralumes incorporate the high power factor, low stroboscopic circuit described in Hygrade patent 2,195,114 and the quick, trouble-free starting described in Hygrade patent 2,195,115. Practical design features that meet the specific needs of industrial and commercial light users are described in Hygrade patents D-120,563, D-122,145, D-122,236, and D-122,903.

Superior coating—protected by exclusive Hygrade patents—means *evenly distributed lighting along the entire length of each* Hygrade Fluorescent lamp for its entire life!



Shown here are three of Hygrade's complete line of finer-quality fluorescent lighting fixtures for every use. Hygrade fixtures are available for continuous row lighting in both commercial and industrial installations.

Promote Porcelain— You Can Get It Now

By Edward D. Plesec
Advertising Manager
Porcelain Products, Inc.

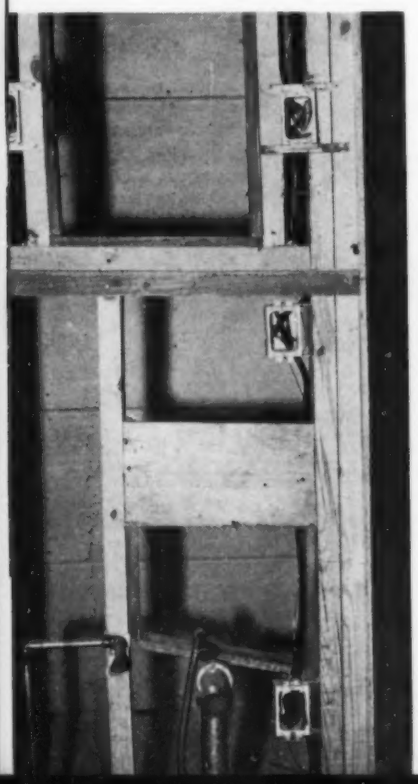
NOW that we have entered the international melee in earnest, the electrical wholesaler will be asked to supply materials in greater quantities than ever before for the electrical functions of industry. This because he is charged with the difficult task of keeping a sufficient supply of essential materials on hand to insure a continuous electrical service and the utmost efficiency for our tremendously expanded production of arms and armaments. At the same time he will be expected to take care of a certain amount of non-defense needs.

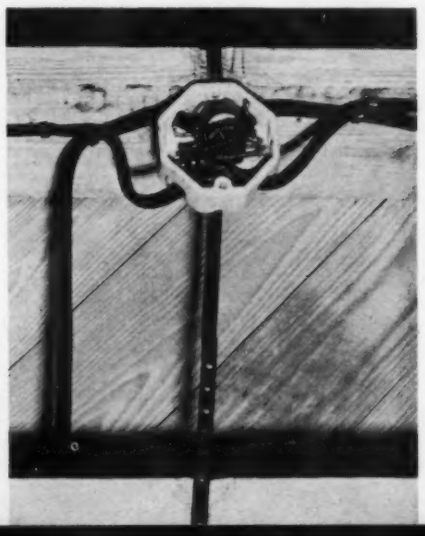
Numerous restrictions and limitations already have been established through the use of priorities, industry allocations, and certain production controls, due to the scarcity of certain raw materials, etc. Knowing this the electrical wholesaler can do much to assure a victorious war effort by assuming the responsibility of finding and stocking substitute materials and new products to take the place of those so necessary for the war program. Thereby he will be able to continue the type of service that in the past has demonstrated his value as an essential agency of distribution.

The initiative for conservation of vital materials in the electrical industry was taken by the Office of Production Management some time ago when it recommended in its Defense Housing List of Critical Materials the use of porcelain knob and tube and non-metallic sheathed cable wiring systems, (OPM preference in the order named). This in accordance with the policy that materials that are readily available must supplant those which the country needs so vitally for its war efforts. One of those available and non-critical materials is electrical porcelain.

The porcelain industry is already playing an important part in this war effort and stands ready to supply the electrical industry with its needs for porcelain in non-metallic wiring construction. A wide variety and a large quantity of porcelain materials has always been used in electrical wiring, transmission and distribution, electrical product manufacturing, etc. Today, in order to meet the needs of the times new porcelain products and new applications of old products are being developed constantly.

One of the recent applications of porcelain is the use of porcelain outlet boxes for all types of general residential, commercial and industrial electric wiring. These boxes already have a six years' service record, during which time millions have been installed throughout the country, attesting the claims of safety, durability, and the ease of installation made for them. They are designed for use only with non-metallic sheathed cable and single conductors supported on knobs and tubes, and provide completely insulated wiring systems when thus employed. Porcelain being an insu-





Porcelain switch and receptacle outlet boxes, roughed in for mounting in bathroom (left). Note bare grounding wire to ground the fixture. Boxes can be mounted on conventional metal bar hangers, on Kruse strips, or on accompanying hangers as shown in second photo; also as in illustration at right, on ceiling with slotted bar hangers (Porcelain Products photo)

One of several large housing projects which employed knob and tube wiring, was the English Woods project at Cincinnati, Ohio.

lator, each outlet becomes a completely insulated enclosure that is shortproof and shockproof.

Typical installation views of porcelain outlet boxes are shown in the accompanying photographs. No special technique is required for installing, but the safety and durability of porcelain boxes offer a distinct sales arguments.

Wholesalers need carry but a comparatively small number of porcelain items in their stock to take care of most ordinary electric wiring requirements. Boxes, knobs, tubes, cleats, receptacles make up the major part of the list. To this might be added box covers, and a few specialty items, such as certain surface wiring devices which were developed for safer surface wiring outlets.

Practically all these products are readily available as compared to the scarcity of those products made of materials required directly in war production, and in fact porcelain manufacturers ship most of the standard items direct from stock and the outlook for quick deliveries on other materials is reported to be generally good.

The wholesaler who would take full advantage of the opportunity porcelain provides to aid the war effort through conservation of critical materials should first of all check to see how extensive a list of porcelain products is available. He should then strive to promote a broader use of the products with which he is already acquainted while at the same time he should introduce more of the items which are new to him.

One very important factor in the promotion of a wider use of porcelain should not be overlooked. The wholesaler's salesmen and countermen should have a thorough knowledge of the use, characteristics, and limitations of porcelain as they apply to the electrical industry. These may be summarized briefly as follows:

Porcelain is one of the most dependable, most widely used, electrical insulating material known to industry. Surprising advancements have been attained in the dielectric, heat resisting, corrosion resisting, and mechanical properties.

Porcelain is practically limitless in its resistance to such destructive forces as rust, corrosion, and disintegration. It is also unaffected by alkalies and most acids.

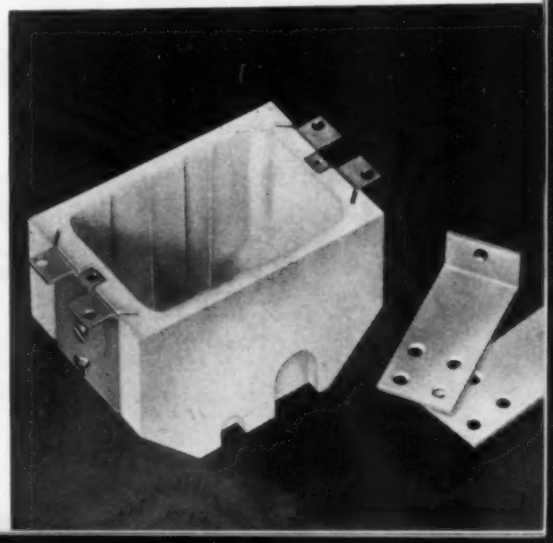
These characteristics make porcelain materials particularly desirable for all general residential, commercial, and industrial wiring installations, and for many special applications therein where the National Electrical Code has placed limitations on other types of material.

Porcelain wiring materials in addition to providing maximum safety and durability for all general wiring installations also have proven particularly desirable in such locations as stores, factories, meat packing plants, canneries, hide cellars, game rooms, fertilizer rooms, salt storage, chemical works, metal refineries, pulp mills, sugar mills, round houses, and locations where sulphur fumes are present, stables, dairy barns, and other locations where ammonia fumes are present, such as chicken houses, storage battery rooms, breweries, ice plants, cold storage warehouses, tanneries, commercial laundries, dairies, bathrooms, kitchens, home laundries, basements, barns, and similar locations.

Governmental agencies are particularly desirous of seeing the use of such methods and materials as will effect a conservation of metals and other critical materials. Among these are O.P.M., F.H.A., U.S.H.A., R.E.A., and U.S.Q.M.C. Porcelain wiring products are acceptable to all these departments. The illustration herewith shows a large scale application of knob and tube wiring which was specified for the English Woods as well as Winton Terrace housing projects in Cincinnati, Ohio.

To give an idea of the amount of materials that the electrical industry can save—the Edison Electric Institute estimates that a broader use of non-metallic wiring systems would conserve 74,000 tons of steel, 1,400 tons of rubber, and 600 tons of zinc. These figures are based on 1940 data and are admittedly conservative. The use of open wiring systems run on porcelain supports would also conserve a huge quantity of copper due to the fact that this type of wiring can be installed with smaller wire sizes to carry larger currents, as noted by Table 2 in the National Electrical Code. Possibly the largest savings by use of smaller conductors could be made in industry. Here larger wire sizes are used and it is in the larger sizes of conductors that the greatest difference in carrying capacities occur. Obviously the porcelain industry is destined to play an important part in making this a Victorious War.

A recent application of porcelain is its use in outlet boxes like the closeup of the porcelain switch outlet box with adjustable metal lugs and metal hangers shown. (Porcelain Products photo)



These Are The "MUST" Specifications For Units To Be Employed In Victory Production Lighting

They MUST

STAND UP DAY AND NIGHT

... HEAVY DUTY WAR PRODUCTION SERVICE MUST NOT BE INTERRUPTED BY LIGHTING EQUIPMENT FAILURE DUE TO CHEAP OR FLIMSY CONSTRUCTION.

BE PROPERLY DESIGNED

... TO SHIELD THE EYES OF WORKERS AGAINST GLARE AND PROVIDE EFFICIENT, UNIFORM LIGHT DISTRIBUTION.

CONSERVE POWER

... BY PROVIDING WITH THE ABSOLUTE MINIMUM OF POWER CONSUMPTION THE HIGH LIGHT LEVELS OF 35 TO 100 FOOT-CANDLES REQUIRED FOR VICTORY PRODUCTION.

NOT WASTE LIGHT

... THE REFLECTING SURFACE MUST HAVE HIGHEST PRACTICAL REFLECTION FACTOR AND MUST BE EASILY MAINTAINED AT ORIGINAL EFFICIENCY.

CONFORMANCE IS ASSURED WHEN YOU SPECIFY

BENJAMIN FLUORESCENT LIGHTING EQUIPMENT

THE lighting must not fail! There can be no blackout of production due to lighting equipment failure. Neither can there be waste of power or light! Day and night production must be maintained at its highest possible rate with lighting that speeds seeing, conserves the eyesight of the workers, and helps them to sustain production speed and product quality, with a minimum of fatigue.

These are the specifications met by Benjamin Fluorescent Lighting Units. Designed and constructed with that extra safety factor of strength and durability which Benjamin through 40 years of experience has found essential in industrial lighting, these units can be depended upon to provide lighting that will not fail! Protected by Benjamin life-time porcelain enamel finish, these units are constructed to withstand the severe mechanical strains to which they may be exposed in ordnance and industrial plants . . . smoke, fumes, grime, dust, weather, etc. With this finish, maintenance of original lighting efficiency is assured as this surface does not corrode, tarnish, oxidize or decompose and can easily be cleaned and restored to original efficiency with soap and water.

Available for the lighting of plants engaged in the production of war materials and essential civilian production are: Benjamin RLM "Lite-Line" equipment which provides continuous lines of light across the entire ceiling . . . Benjamin RLM "Stream-Flo" Units, and Benjamin Dust Tight Fluorescent Lighting Units, for requirements of armament plants and other Type II-G hazardous locations. For complete details, address Benjamin Electric Mfg. Co., Dept.GG Des Plaines, Illinois.

WARRANTY OF PERFORMANCE AND CONSTRUCTION
The Trade Mark
BENJAMIN
on Fluorescent lighting equipment is your assurance of correct design, heavy-duty construction and efficient performance backed by forty years of specialization in manufacturing lighting equipment for commerce and industry. Reflectors, auxiliary control equipment, sockets and other component parts of these fixtures are engineered for co-ordinated operation with Mazda Fluorescent Lamps to give maximum light output and trouble-free operation.
Benjamin Fluorescent Lighting Fixtures are warranted to comply with all recognized illumination, electrical and mechanical standards and applicable RLM standard specifications and to comply fully with specifications and performance data published for each type of unit by Benjamin Electric Mfg. Company. They are fully warranted against defects in material and workmanship and are built with an extra safety factor of strength to insure long life and maximum durability.
All auxiliary control equipment is certified by Electrical Testing Laboratories to conform with the latest specifications for such equipment sponsored by the Mazda Lamp Manufacturers. Complete units and all auxiliary control equipment and sockets are listed by Underwriters' Laboratories as meeting National Electrical Code requirements as evidenced by Underwriters' inspection label affixed to each unit
LABORATORIES

BENJAMIN

World Leader in Industrial

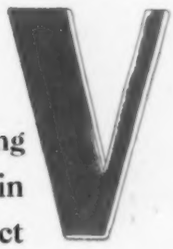
LIGHTING EQUIPMENT

DISTRIBUTED EXCLUSIVELY THROUGH ELECTRICAL WHOLESALERS

By B. H. Sullivan
General Sales Manager Westinghouse Lamp Division

Remember Pearl Harbor!

NOW—New Sales Opportunities In Germ-Killing Lamps



The wholesalers regular customers will buy germ killing lamps. "Cold turkey" canvassing is not necessary to get in on the growing market for this new and important product

B. H. Sullivan

IN times like these, when many salesmen are looking ahead and wondering how much of their staple lines they will be able to sell in the not too distant future, it's comforting to learn that new opportunities for sales and profits are still opening up. The research laboratories of great industrial concerns have been working overtime to develop new products and devices which are essential to today's needs and can be produced during the present period to meet these needs.

Ten years ago, the research laboratories of the Westinghouse Lamp Division developed a new type of lamp which, instead of producing visible light, emitted a radiation invisible to the human eye but which kills all forms of germs, bacteria and mold. This radiation is known as selected ultra-violet radiations, and the lamp which produces it is called the Sterilamp. These are long thin tubes one-half inch in diameter and come in three lengths; 10 inches, 20 inches and 30 inches. They operate in special fixtures which combine the reflector, sockets and necessary transformer.

The uses or needs for germ-killing ultra-violet radiation are countless. To list only those in use today would require many pages. The important fact is that this new development can be sold to the customers now being called on by wholesalers' salesmen. Thus, without "cold turkey" canvassing a new and profitable channel for sales is opened up. Distributor franchises are now being negotiated with many electrical wholesalers.

The following are but a few of the many places where germ-killing lamps can be sold.

1. *Every store, factory, office, hotel, restaurant and theatre having an air-conditioning system.* Germ-killing lamps installed in the ducts of an air conditioning system clean up the air and prevent the system from picking up infectious germs and mold spores from one location and spreading them to other points served by the same system. In this way, the health of employees and customers is protected and the purity of products being manufactured, processed or packaged is preserved.

2. *Every plant handling, processing or packaging food needs the protection of germ killing lamps.* Every year millions of dollars worth of foodstuffs are thrown away because mold develops in them before the consumer can use them. Those lamps, properly installed over conveyors, wrapping tables and packaging machines prevent mold spores from getting into foods when they are being packed or processed. Foods protected by germicidal ultra-violet radiation reach the consumer in the same fresh, wholesome condition in which they left the plant. They will also have a longer mold-free life after they reach the con-

sumer. These are advantages which mean dollars and cents savings not only to the food manufacturers but to food wholesalers, retailers and the consumer as well.

3. *Bottling plants.* Hundreds of concerns are engaged in bottling soft drinks, syrups, condiments, fruit juices, beer, lotions, etc. Practically every one of these companies has the problem of preventing mold, fermentation and rancidity. Most of them take elaborate precautions to control it by washing bottles in hot water and chemicals, use of steam and scrupulous cleansing of machinery and equipment. By the use of germ-killing ultra-violet radiation, they add a final measure of precaution and purify the air which carries the germs, bacteria and mold causing the trouble.

4. *Retail and wholesale food establishments having walk-in coolers or display cases.* Meat, fruit, vegetables, cheese, dairy products and milk are most susceptible to spoilage due to mold and bacteria. Ultra-violet radiation in the storage areas purifies the air and keeps the exposed surfaces of the food free from contamination. Ultra-violet radiation also kills odors, thus keeping the storage area sweet-smelling and prevents transference of odors from one food to another.

5. *Biological laboratories* are among the many other places where germ-killing lamps are proving to be a real money saver. Here the utmost in cleanliness and sterility must be maintained. Heat and chemicals are used to sterilize the bottles, ampules and instruments, but only ultra-violet radiation can keep the air germ-free and provide a sterile environment in which final packaging is carried out.

Cosmetic Manufacturers use such lamps over cooling tables to keep creams and lotions mold-free and prevent rancidity.

Breweries find that germ-killing lamps in wort cooling rooms will prevent the beer from being contaminated by wild yeast spores. They also use them over bottling conveyors to insure cleanliness of bottles from the time they leave the washer until filled and capped.

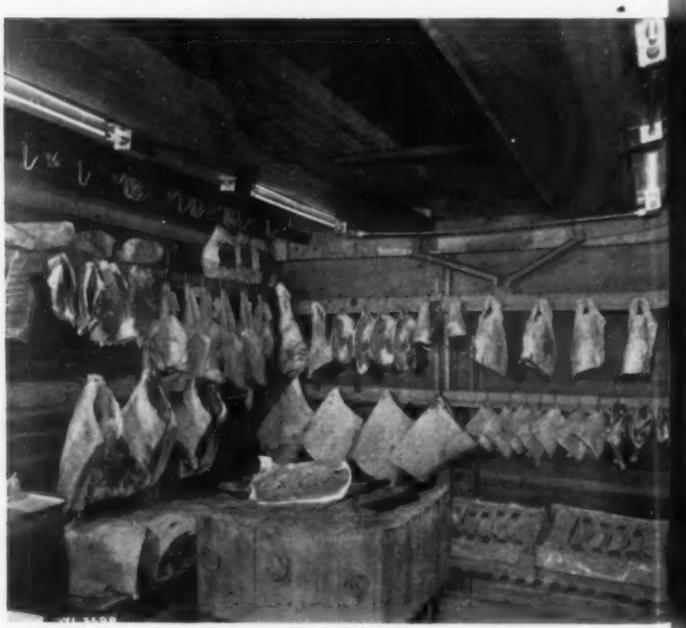
Milk plants use these lamps in areators where milk is cooled after coming from pasteurizing machine and milk cans are conditioned before being filled to insure cleanliness. On dairy farms suitable installations in the milk house prevent air borne contamination from settling in cans and on utensils.

Animal Protection: Animals, like human beings, are subjected to disease caused by air borne organisms. Installed in cow barns, stables, kennels and pet shops bactericidal lamps create a more sanitary environment and prevent transfer of disease from one animal to others that it comes in contact with.

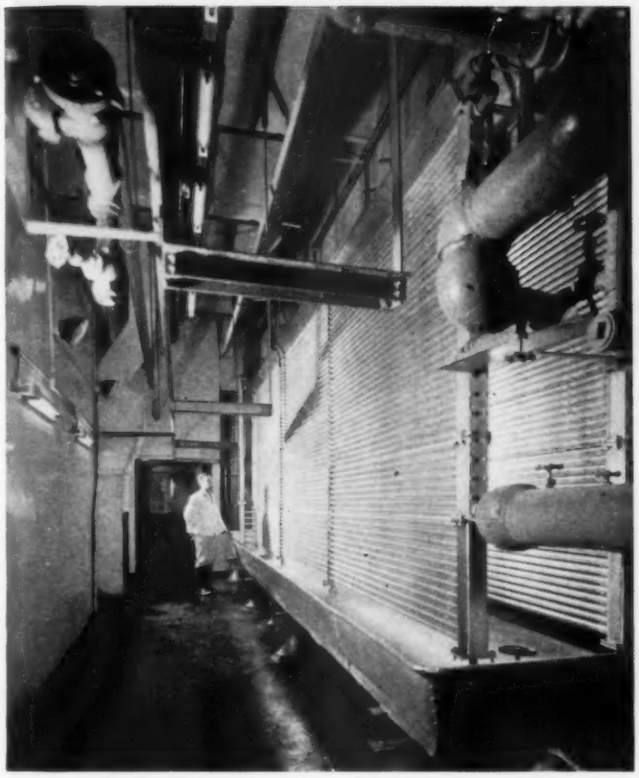
Sterilamp Conditioning Is Easy To Sell

With every new product or development, new terms are needed to describe its use or action. Don't let the new terms used in this discussion of ultra-violet radiation scare you or lead you to believe that you can't sell it because you are not a chemist or bacteriologist. Think of ultra-violet radiation as light . . . light which the eye can't see but which kills germs, mold and other air borne organisms. Then, remember that every time you see a moldy piece of food, or a person with a cold, or any product that has been spoiled by mildew, or mold, that the cause of the trouble is tiny living organisms, which are carried from the source of infection by the air. These organisms can be killed by selective ultra-violet radiation—the steril lamp. No other method known to science will do this as effectively, economically and practically as ultra-violet radiation.

The application of ultra-violet radiation is also a simple problem. Ninety-five out of a hundred applications can be solved by anyone understanding the basic principles. For the other 5 per cent of the cases, engineering service is available from

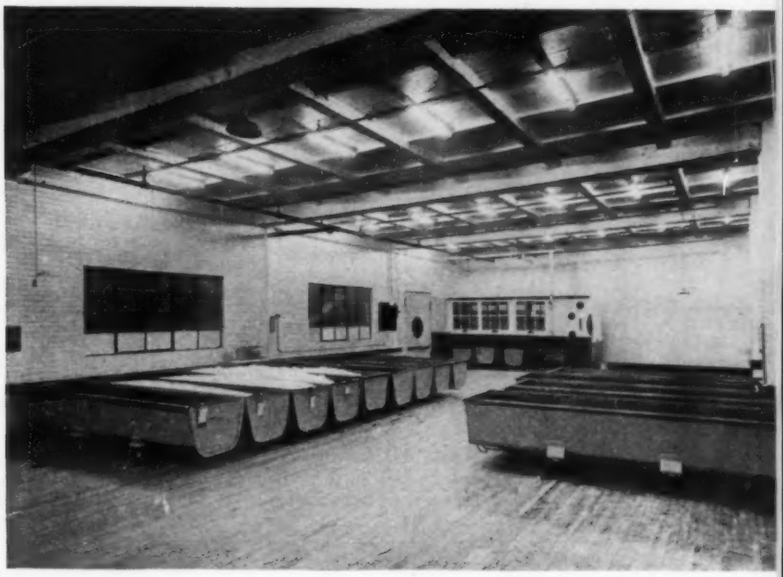


In restaurant or cafeteria, germ killing lamps installed under a simple hood above silver trays (left) kill air borne bacteria. Below meats in walk-in coolers of retail butcher shops can be aged with minimum loss from spoilage due to mold and slime. (Westinghouse photos)



Sterilamps on ceiling and walls keeps the air free from bacteria and wild yeast when the warm brew in the wort room of this brewery is cooled by flowing over refrigerated pipes to the trough below.

(Below) Precautions in the form of germ-killing lamps are taken to prevent mold spores given off while the bread is raising from getting into other parts of the bakery where they may contaminate the finished product.



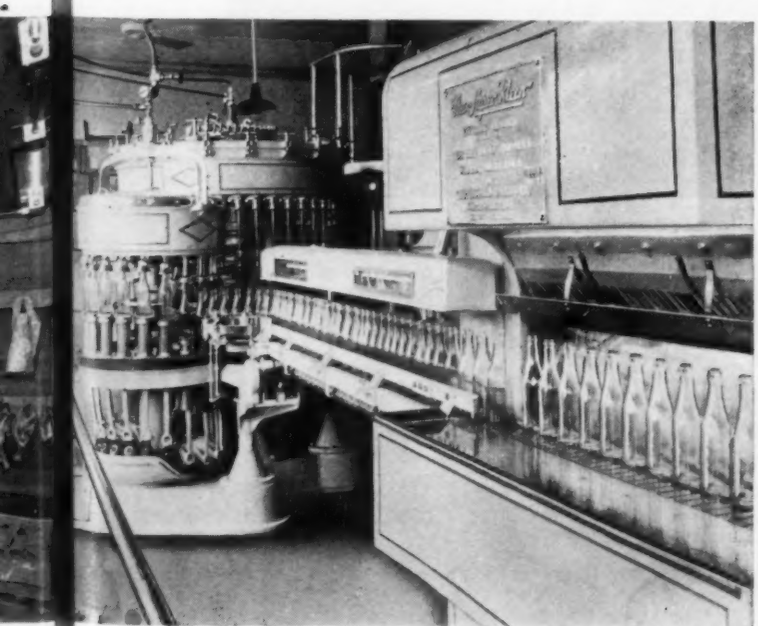
the ever cooperative manufacturer.

There are two general types of applications. First, general radiation. This is used where an entire area is used for storage or packing. In this case, fixtures are installed on the ceiling. The number required is based on the use of one 30 inch lamp for every 400 cubic feet of area.

The second type of application is localized radiation. In this case germ-killing lamps are placed over work tables, on conveyors or machines, to provide an intensive concentration of protective radiation. The number of lamps required is determined from simple tables in manufacturer's literature.

Complete educational technical and promotional literature is available to help every wholesaler and his salesmen to cash in now on a market which is ready and waiting.

Germ-killing lamps eliminate bacteria when installed in the ducts of the air conditioning system (right) and provide steril air for a large biological laboratory. Below, the lamps safeguard bottles from air carried bacteria in their journey from washing to filling machine.



By M. I. Alimansky and R. E. Insley
General Electric Co.

NOW—New Sales Opportunities In Capacitors

Saleswise, it's profitable for wholesalers to talk capacitors, a flexible, uncostly way for industrials to improve power factor and help the electric system to operate more efficiently and at no greater cost

Remember Pearl Harbor!

IF we were to ask a group of engineers to give us their definition of power-factor, we probably would receive many different answers. Each person has his own practical conception of power-factor. One of the simplest and easiest to visualize is this one:

"Power-factor" is the electrical term used to denote the ratio of useful power current to the total supplied current in a circuit, and can be best explained by two simple examples:

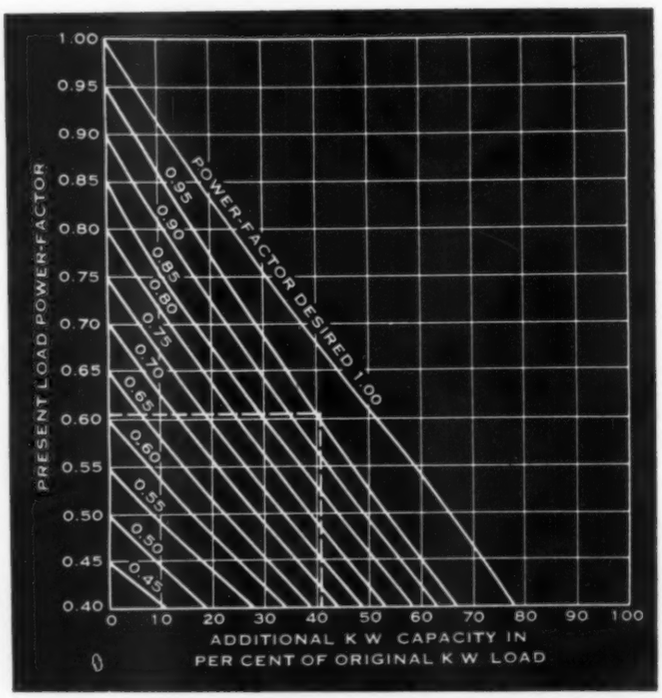
Example 1

In an electric circuit supplying a load composed solely of incandescent lights, pressing irons, toasters, water heaters or other equipment containing no electromagnets, 100 percent of the current supplied is used to produce heat, light, or other beneficial results. This circuit is said to have 100 percent power-factor.

Example 2

However, if the circuit contains magnetic equipment, such as induction motors, transformers, electromagnets, etc., current must be supplied to energize these. This current, known as "magnetizing current," produces the magnetic field. Magnetizing current actually produces no useful power but nevertheless is necessary for the proper functioning of the equipment. If the total current in a circuit were 100 amperes and the power current only 70 amperes, then the power-factor would be—

$$\frac{70}{100} = .70 = 70\%.$$



Dotted line shows method of determining percent of new load which the power system can carry after installation of capacitors. Horizontal line drawn from point at left representing power factor intersects curve representing desired new power-factor. Vertical line to base of chart from point of intersection gives desired figure.

Why do we worry about low power-factor?

The generation and distribution system which supplies the circuit of Example 2 must necessarily provide 100 amperes, whereas the actual power current required is only 70 amperes. This means that the electric system must be 100/70 or 143 percent as large as that of Example 1, in order to provide the necessary magnetizing current.

Low power-factor, then, means that the existing generation, transmission, and distribution facilities of the power companies may be loaded to capacity, or even overloaded, from the standpoint of current, and yet underloaded from the standpoint of power being delivered. Since, for the same power delivered, low-power-factor loads impose a greater burden than high-power-factor, power companies have been allowed to introduce into their power contracts kva-demand and power-factor-adjustment clauses which impose an extra charge for low power-factor. Similarly, for industrials generating their own power, power-factor is extremely significant, since the power which can be drawn for production purposes is limited by the amount of generator capacity taken up by magnetizing current.

How can we improve power-factor?

If some device could be found which could be located near the apparatus requiring the magnetizing current, which device were capable of providing this magnetizing current locally, then it would be possible to eliminate the magnetizing current from the generator and feeders, thus releasing system capacity for additional power load. Fortunately, such a device does exist; it is called a "capacitor." It is obtainable in many voltage and current ratings to fit the particular application. When such a capacitor is installed in the electrical system which previously had a low power-factor, the power-factor is improved and the system operates more efficiently and inexpensively.

Where and how should capacitors be applied?

Means for improving power-factor should be applied at the source of trouble. Capacitors connected on circuits with low power-factor reduce the current between the point where they are connected and the source of supply. Therefore, it is imperative that they be installed at or near the terminals of the machine drawing the magnetizing current.

In selecting capacitors, it is possible to work out the optimum value of capacitor rating mathematically, but these calculations are laborious, especially when a number of cases are to be computed. "Short-cut" methods have been devised, as shown in the simplified chart.

Conclusion

In many industrial plants, existing circuits, transformers, and switching equipment can be made to carry additional power load by the application of capacitors to improve power-factor. This is especially valuable under present conditions, since capacitors are flexible, inexpensive, and obtainable in relatively short time.

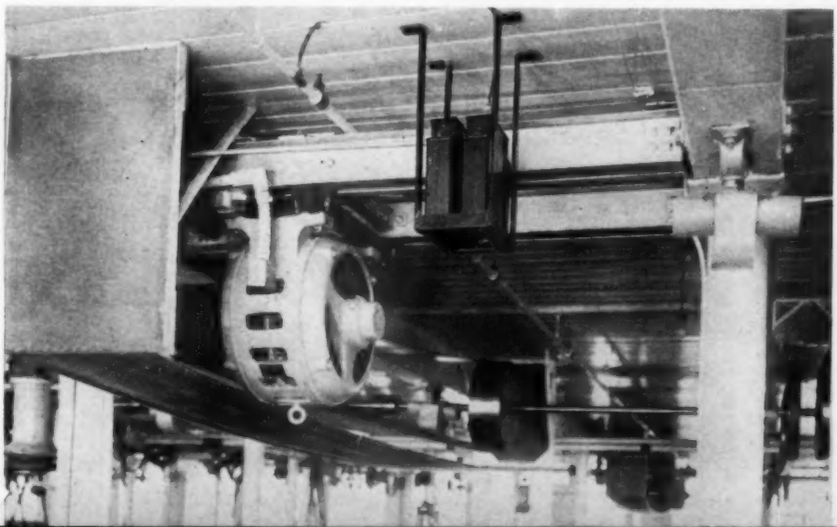
At the 1200 ft. level in a gold mine, G.E. indoor rack-type Pyranol capacitor, 60 kva, 460 volts.

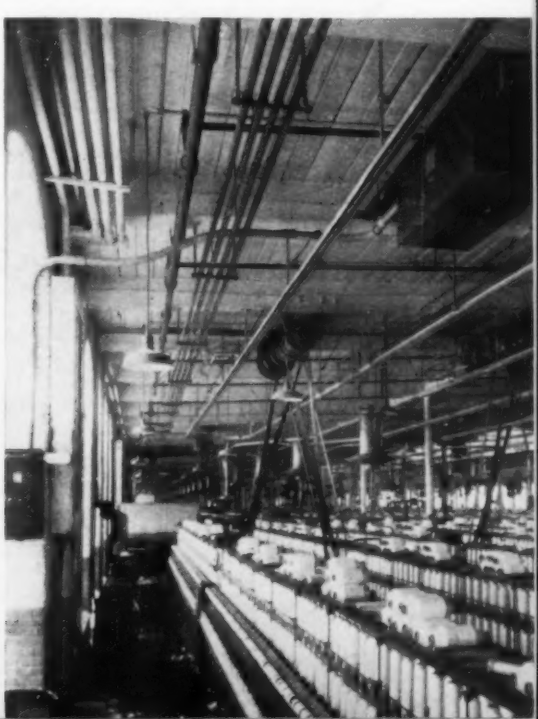
LOAD WHICH CAN BE ADDED AFTER POWER-FACTOR IMPROVEMENT

Original Power-factor	New load that can be added in per cent of present load with power-factor improved to:		
....	90%	95%	100%
60%	35.8	41	51.5
65%	29	35	44
70%	23	28.5	37
75%	17	22.5	30

Capacitor installation (below) in an Alabama mill rated 20 kva, 3-phase, 60 cycle, 575 volts, consists of two 10 kva. enclosed dust-tight units.

A large Georgia textile mill (right) uses indoor dust-tight small rack-type capacitor equipment rated 120 kva. 3-phase, 60 cycle, 575 volts. (G.E. Photos)





Remember Pearl Harbor!

By Richard D. Bradley

Director of Sales and Engineering
Day-Brite Lighting, Inc.

After Fluorescent's Honeymoon—Sell Comfortable Seeing

New approaches to old prospects succeed when they feature ease in seeing as a result of the right lighting installation

Richard D. Bradley

SALES curves for fluorescent lighting installations continue to skyrocket, showering sales volume upon wholesalers and the manufacturer. No lighting product has ever achieved such wide distribution and high sales volume in so short a time.

Just where fluorescent sales will level off—just when the fluorescent honeymoon will change into the reality of everyday existence—few of us can say. However, right now, while the honeymoon is still on, every salesman should be planning, for the change of the fluorescent buying market into a fluorescent selling market . . . a change which can be beneficial to all of us, if we are ready for it.

Despite the melee and confusion of its honeymoon stage, fluorescent lighting has earned for itself a permanent spot in the American business scene. Each new business enterprise must traverse an uncertain path in its introductive period. Not many have done it as successfully, nor as sensationally, as has fluorescent lighting. However, neither have many new developments had the wholehearted blessing and support of the so highly organized and efficiently, but economically, functioning wholesaling system for distribution that the electrical industry supports. It is because America has that wholesale system today—that fluorescent lighting has gained such wide distribution and broad acceptance in so short a time.

With a change in tempo in the offing, the wide awake salesmen now should be planning for tomor-

Where ducts are already installed, they may often be adapted for use without seriously affecting the efficiency of the new set-up as in the installation of four-light troffer units in the large drafting room below. (Day-Brite Photo)

An average of 48 footcandles is delivered at working surfaces by forty watt lamps. It takes 74 two lamp fixtures to illuminate about 3200 square feet. Spacing of outlets is 9 ft. 6 in., mounting height 14 ft. 6 in. (Curtis Photo)

row's changed conditions in fluorescent sales. They should be determined that when sales finally stabilize, they will do so on a high volume plane, rather than bring a recession in sales.

Proper planning can give fluorescent lighting a greater future than the most enthusiastic optimist would forecast, if judging only by past performance. But to plan for that future we must definitely include the theme of "Comfortable Seeing"—ease in seeing as a result of correct lighting, in industry, in commerce—every place where artificial lighting is employed today.

To insure "Comfortable Seeing" (doesn't the term itself suggest new approaches to old prospects?) to every customer, so far as fluorescent lighting is concerned, results from three factors: scientifically engineered and installed equipment, availability of a wide variety of fixture types so that the correct unit can be furnished for every standard application, and last but by far not least, the salesman's background and ability to recommend the right equipment to answer specific architectural and illuminating requirements.

Some realistic wholesaler's salesmen have said that fluorescent's honeymoon era has developed one outstanding fault. "Comfortable Seeing" was forgotten in the rush to buy this new efficient illumination. This, they say, resulted in reports of unsatisfactory service which followed those installations where the buyer made his purchase upon price and price alone, and where he went to opportunist sources of supply whose only appeal was the price appeal. Those salesmen aver that few expressions of dissatisfaction have come to their attention where the sale followed an engineering appraisal of actual lighting needs, and installation based upon those engineering recommendations.

What that experience record means for the future of fluorescent lighting is obviously quite clear:

It means that manufacturers must be ready to assist you to sell "Comfortable Seeing" by backing you with a complete and easy-functioning engineering service available for any type of project. Also they must increase educational opportunities for the wholesaler's salesmen so that they are in fact "engineers on the job," so that the prospect will consider them to be capable lighting engineers and not merely as fixture salesmen.

As fluorescent lighting matures, those sources of supply which fail to provide a well-rounded engineering service will disappear . . . the opportunist will have found that, while it isn't difficult to step onto the bandwagon, it is difficult to stay on when the bandwagon gains full speed.

A highly favorable factor in "Comfortable Seeing" is the trend to shielded sources. Fixtures shielding fluorescent light sources of course bring higher prices, and will do much to help the whole industry to climb out of the price market that was brought about by opportunist competition.

A dramatic element in the "Comfortable Seeing" theme, which can be used when in the presence of prospects, is the story of glare versus intensity on the working plane.

What is glare? At what candle power per square inch does glare start? This can be confusing to salesman and customer alike until we go back to a term that is more or less commonly used and readily adaptable, namely, the "foot-lambert."

Executives stay cool and comfortable through long summer sessions with this fluorescent installation. 160 fc. of daylight quality (G.E. photo)

A foot-lambert, by definition, is a measure of brightness—one lumen per square foot of area reflected or emitted. We need only the reflection factor of the surface to convert directly from foot-candles to foot-lambert. What do we see by? Not foot-candles *on* the working plane, but brightness contrasts *of* the working plane.

Every salesman should keep in mind that fluorescent honeymoon may soon be over. He should start now talking about the advantage of shielded sources, get from the manufacturers proper engineering and application aids, and above all start selling "Comfortable Seeing." Those are definite insurance policies for future sales. Try it on your next call.

Silver display rooms created a special problem in which fluorescents provide softness and wide distribution of light to eliminate glare from bright surfaces of the merchandise. Color adds to sales appeal. (Frink photo)

Fluorescent installations with higher light levels increase efficiency of office workers. Here light level was raised from 9 to an average of 24 footcandles at the working plane. Units mounted 10' high on 12' by 12' centers. (Hygrade photo)

Winning This War

on The Production Front

V

Remember Pearl Harbor!

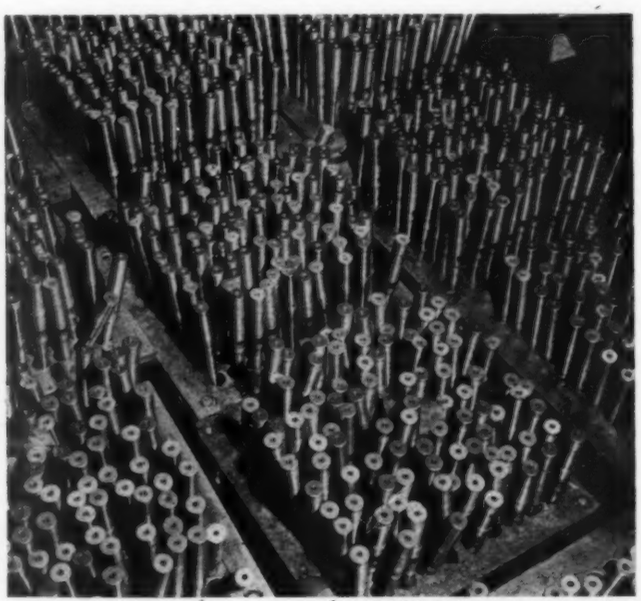
A series of photographs and pertinent data that was supplied by the President's Office of Emergency Management to answer the question "Where do we stand on production?" Since Pearl Harbor, every American will thrill to the answer

National Defense Advisory Commission Photo by Palmer

MACHINE GUNS *to supply added firing power for our new Army at War are being inspected in the ballistics laboratory of the Springfield Armory, Springfield, Mass. During the Fall months, production on .50 caliber machine guns had increased 12 times, on .30 caliber, 3 times, over the previous January. Our Army must have, and is now getting, the finest in weapons to answer the challenge of the aggressors.*

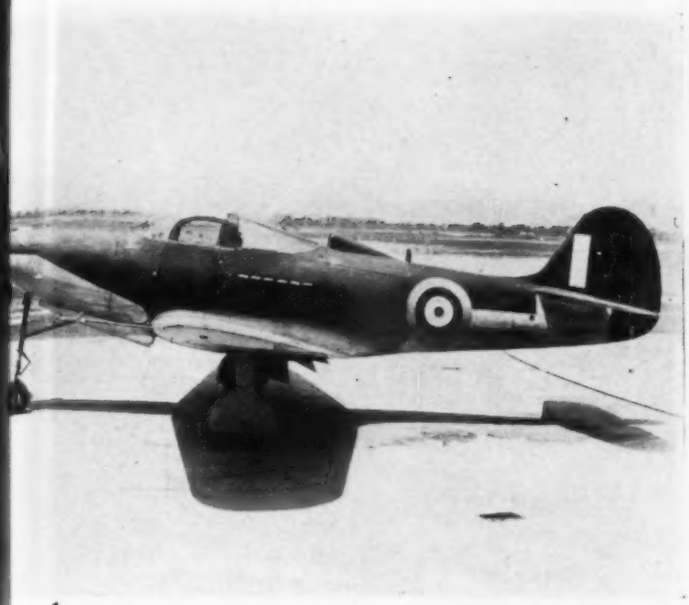
SHELLS *for our Army's artillery, anti-aircraft and coastal defenses are being produced in great quantities that will soon be augmented by the opening of new chemical powder and T.N.T. plants, and the shell manufacturing factories now being equipped with machines.*

OEM Defense Photo by Palmer



OEM Defense Photo by Palmer

GUNS, *and plenty of them, to arm every fighting man in the service, are in the process of manufacture. Production of the Garand rifle has been increased more than twice in 1941.*



1. Bell Aircraft Corp. Photo

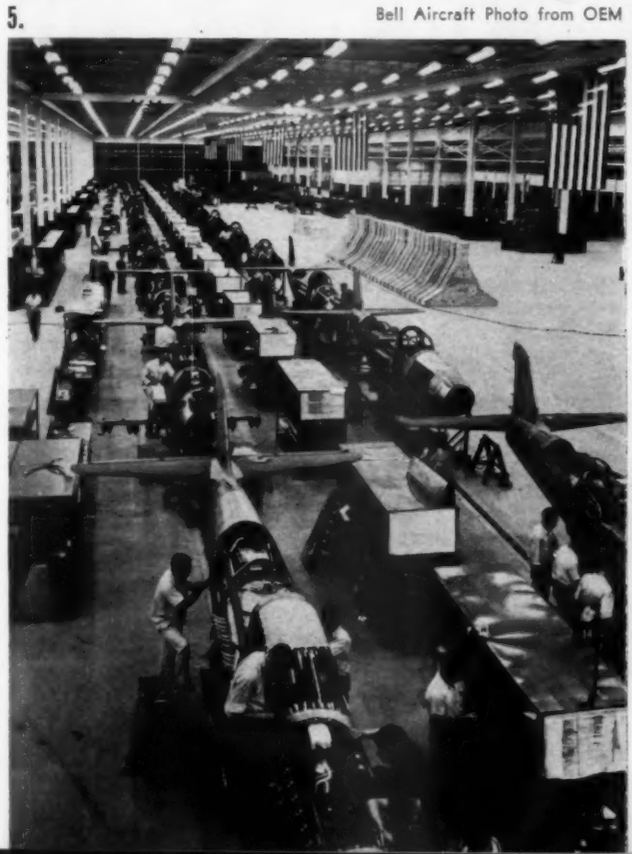
2. Vultee Photo from OEM

AIRCRAFT *by the thousands and more thousands, until the air of the world is ruled by freedom-loving peoples. Toward that goal the aircraft industry is working in high gear, and yet it is still increasing production up and beyond the hopes of a nation that asked for considerably more planes in the next two years than the industry had produced in the previous 37 years. The actual work speeds on powered assembly lines such as those seen here. The results of America's production genius shows in the records of aircraft deliveries—1016 in January, 1941; 1476 in June; and this month an expected 2500 planes off the lines!*

PHOTOS: One of the world's fastest fighting planes, the Bell-Airacobra, shown in (Fig. 1) with R.A.F. ensignia, is being turned out on powered assembly lines (Fig. 5) in great quantity for both the U. S. and Great Britain. A halfway point on Vultee Aircraft's monorail assembly line is seen in (Fig. 2). Through the opened hangar door of Bell's new factory at Niagara Falls (Fig. 3) we see 720 fluorescent lights bringing daylight working conditions to the night shift. On the West Coast, Boeing is turning out great quantities of these famous Flying Fortresses (Fig. 4) as long-range guardians of our coasts and our freedoms.

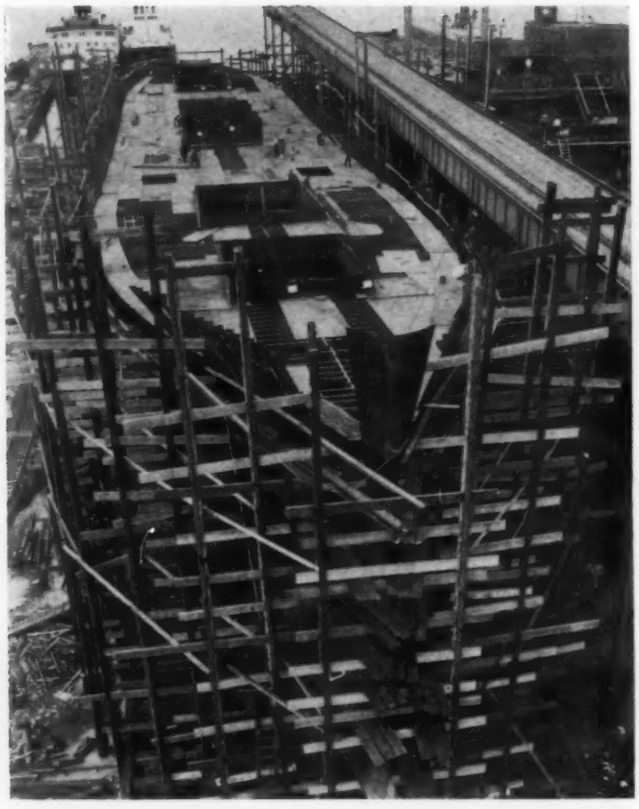
3. Bell Aircraft Photo from OEM

5. Bell Aircraft Photo from OEM

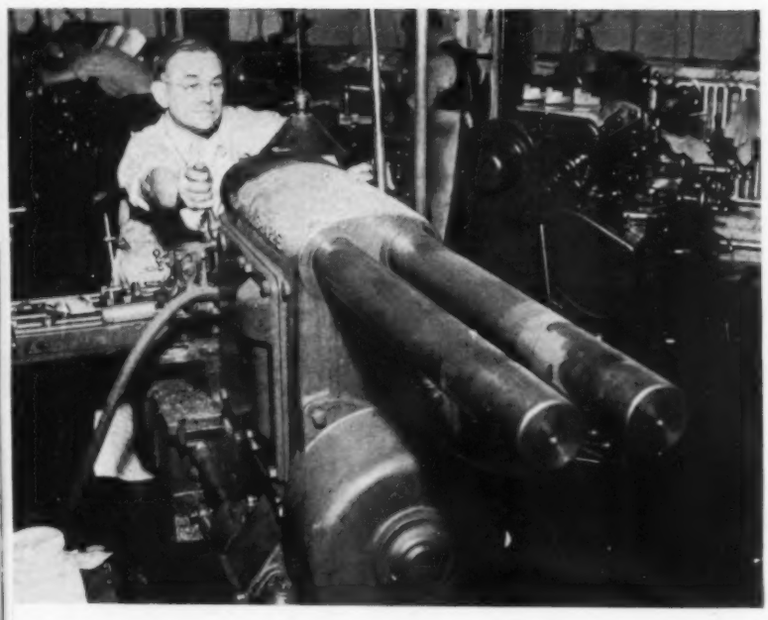


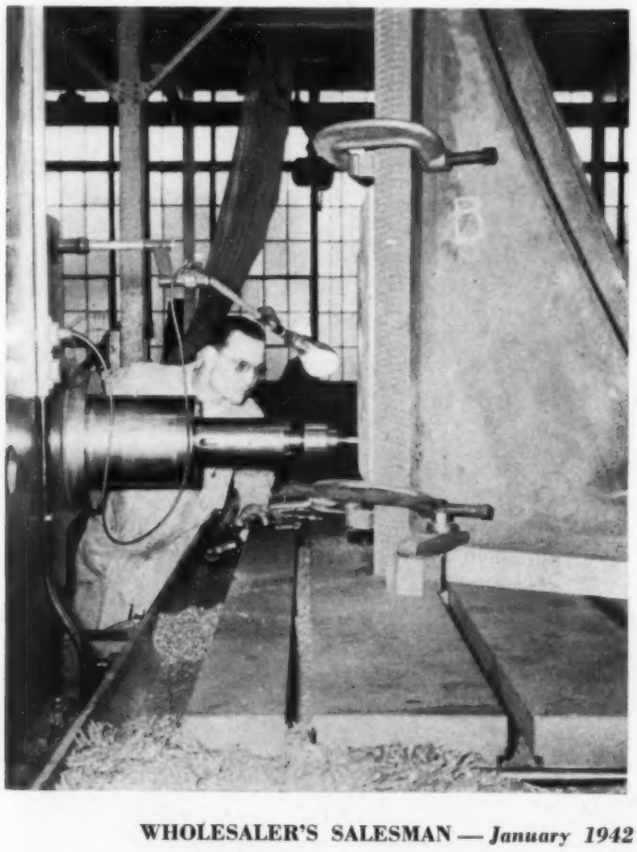
4. Boeing Photo from OEM

TANKS *speed toward completion on three assembly lines at the Chrysler Tank Arsenal, Detroit, Mich. September deliveries of these 28-ton medium tanks were 15 times greater than January, even though American tank production is still in its infancy.*



SHIPS *One a day is the production record now achieved by our builders of cargo vessels. But it is only the beginning, for during the last quarter of 1942, two cargo ships a day will be sliding down the ways. At the same time the Navy is building 2,831 ships for its own use. Above is a C-3 ship 30% completed.*





MACHINE TOOLS *are a basic necessity for a nation that will win the war through production. During 1940-41, the industry turned out a machine tool capacity equal to the capacity of all machine tools in existence in all plants in January, 1940. Above is a small milling machine, at the right a large boring machine, both making parts for shell manufacturing machines at the plant of Frederick Colman and Sons, Inc., Detroit, Mich.*

Photographs by Palmer for the Office of Emergency Management

EXTRA...Released Just as We Were Going to Press...EXTRA

Remember Pearl Harbor!

The Electrical Wholesaler's Newest Business Charter

A NEW order which helps many thousands of manufacturers and producing plants to obtain repair, maintenance and operating supplies was announced December 18 by the Division of Priorities.

The new order is known as Preference Rating Order P-100. It takes the place of the old Repair and Maintenance Order, P-22, which is being revoked.

Main purpose of the new order, as was the case with the old, is to extend priority assistance to manufacturers and producers so that they can keep their plants and production machinery in good running order. This is in accordance with the policy set by the Supply Priorities and Allocations Board.

The differences between P-100 and P-22 are largely technical. However, some provisions of the old plan have been liberalized and a number of clarifications have been made in order to eliminate misunderstandings and misapplications of the order which occurred in the past.

The assistance granted by the order is not available for retail operations. It is available, however, to the following:

(1) any governmental unit;

(2) any individual, partnership, association, corporation or other form of enterprise engaged in one or more of the following capacities to the extent that it is so engaged or so acts;

(a) manufacturing, processing or fabricating;

(b) warehousing — maintaining warehouses for storage or distribution of any material;

(c) wholesaling—acting as a distributor of products sold to manufacturers, wholesalers, retailers or other persons not consumers;

(d) charitable institutions—any charitable or eleemosynary institution which is recognized as such for purposes of the Internal Revenue Laws of the United States;

(e) carriers — urban, suburban, and interurban common or contract carriers of passengers or freight by electric railway, electric coach, motor truck or bus, including terminals of any of the foregoing; railroads, including terminals; shipping—commercial carriers of freight and passengers by ocean, lake, river or canal, including terminals;

(f) educational institutions (including vocational training);

(g) printers and publishers;

(h) radio — commercial broadcasting and communication;

(i) telephone and telegraph communication, including wire services;

(j) hospitals, clinics and sanitoriums;

(k) Petroleum and Natural Gas —discovery, development and depletion of pools of petroleum and associated hydrocarbons and derivatives thereof, and transportation of petroleum, associated hydrocarbons and derivatives thereof;

(l) irrigation systems, whether publicly or privately owned; toll bridges and toll canals;

(3) Any person using tools or equipment to repair or maintain the property of any Producer as defined in the Order.

P-100, like the former P-22, continues the policy of protecting the health of the nation and maintaining necessary services for its businesses and institutions.

The former restriction on acceptance of materials for inventory of maintenance, repair or operating supplies by producers using the order has been changed to permit inventory and stores not exceeding 110 percent of the maximum dollar volume of such materials purchased during the corresponding calendar quarter of 1940. The previous figure was 100 percent.

This change has been made to allow for price increases. However, the Order now specifically states that no materials may be accepted for additions to inventories and stores of maintenance, repair and operating supplies until such inventories have been reduced to a practicable working minimum.

The restriction on withdrawals from inventory or stores has also been changed to permit withdrawals up to 110 percent of the aggregate dollar volume of such withdrawals in the corresponding quarter of 1940, or, at the producer's option, up to

27½ percent of the aggregate dollar volume of withdrawals during the calendar year of 1940.

Producers whose aggregate purchases of materials for maintenance, repairs and operating supplies do not exceed $5000 in a calendar quarter, and whose withdrawals of such supplies from inventory or stores likewise do not exceed $5,000, are exempt from the restrictions as to purchases and withdrawals. Under P-22 amended (the former order), the exemption was limited to producers whose purchases and withdrawals did not exceed $2,500 in a calendar quarter.

Allowances for inventory use will be made for manufacturers operating on an overtime basis as it is realized that overtime or extra shifts consume an abnormal amount of operating consumable supplies and that an extra allowance is necessary for maintenance and repair due to machine fatigue.

It is not permitted to purchase materials under the order for expansion or betterment of property or equipment. The user in such a case should file form PD-1 when it is necessary to increase the operating capacity of his business. The producer should also use a PD-1 to obtain items that are capitalized and carried on his books as a fixed asset.

The rating cannot be extended by suppliers except to replace materials sold under P-100, and it must not be used to build up stocks in anticipation of filling rated orders.

Operating supplies have also been re-defined in the new order to include ferrous parts required to manufacture containers. This change will assist producers in obtaining nails, barrel hoops and other ferrous items necessary in the operation of their business.

A new provision forbids the application of the A-10 rating under P-100 where any other order of the Division of Priorities assigns some other rating to specific uses of a particular material. The purpose of this change is to prevent draining off of a number of materials, chiefly chemicals, for which "ladders of use" have been established by already existing E or M orders. The preference rating assigned by P-100 may not be used to obtain deliveries of any material to be used for purposes prohibited by any order or regulation issued by the Director of Priorities.

Producers and suppliers purchasing metal cutting tools as defined in order E-2-a must use the metal cutting tool certificate of inventory control, stating that the tools on the order will not increase stocks beyond a three-month period.

Special attention is called to provisions of the order (in B-3) which grant priority aid to:

"Any person using tools or equipment to repair or maintain the property of any Producer as defined."

The above permits welding repair shops, blacksmith repair shops, small machine repair shops and other persons whose business is primarily a repair function to use this Order to keep in working order their own establishments. It also permits such persons to procure the necessary tools and other items consumed in the course of their repair business.

This also applies to the acquisition of mechanics' hand and fine mechanical measuring tools when purchased by a mechanic for use in his capacity as an employee of a plant engaged in defense work.

A mechanic, in order to obtain fine precision measuring tools such as micrometers, calipers and other tools of this type may sign the P-100 certification by simply stating where he is employed and manually signing his name.

Operating supplies covered by the order include files, hack saw blades, grinding wheels and any other items abraded and consumed in the operation of the business.

Operating supplies may also include office supplies with the exception of paper products, but if those items are purchased under the P-100 order they must be included in the person's inventory.

Parts such as gears, bushings, and other items incorporated into final products cannot be purchased under P-100. These items can be purchased, however, if the item being manufactured is a repair or maintenance item. Example: a machine manufacturer producing new equipment could not purchase gears for new equipment, but if he had to furnish a repair part including a gear this could be purchased under the order.

A restriction under P-100 is the fact that non-ferrous materials cannot be purchased under this Order as packaging supplies.

This order is not applicable to any utility defined in Order P-46 nor to any mine operator as defined in Preference Rating Order P-56.

The provision that the rating shall not be applied unless the material cannot be obtained without its use has been deleted from P-100.

The original copy of purchase orders placed under the terms of P-100 must be manually signed; all other copies must bear the special certification as indicated in the Order. The Office of Production Management requires that one copy be retained for inspection.

Any plant or business qualified to use the rating can do so without making application for its use. If a manufacturer needs a repair part, for example, he simply places his repair order with a supplier and on the face of the order manually signs the following statement:

> "Material for Maintenance, Repair, or Operating Supplies — Rating A-10 under Preference Rating Order P-100, with the terms of which I am familiar."

This constitutes legal use of the rating. Any order so rated must be accepted by the supplier in accordance with the terms of Priorities Regulation No. 1. The supplier may extend the rating in the same manner, if necessary to obtain materials going into the producer's order. Suppliers may use the rating for their own repair and maintenance needs, of course, if they are qualified to do so under the terms of the order.

A supplier who does not physically alter parts which he supplies to another is permitted to group several orders together so as to purchase in a minimum commercial quantity.

Purchase orders for repair, maintenance and operating supplies bought under the order must be made up separately from all other orders.

Misuse of the plan may result in punitive action.

Operating supplies have been redefined to eliminate fuel.

Questions about order P-100 should be addressed to the Maintenance and Repair Section, Office of Production Management, Washington, D. C.

Title 32—NATIONAL DEFENSE

Chapter IX—OFFICE OF PRODUCTION MANAGEMENT

Subchapter B—PRIORITIES DIVISION

Part 958—REPAIRS, MAINTENANCE, and OPERATING SUPPLIES

PREFERENCE RATING ORDER P-100

958.2 For the purpose of facilitating the acquisition of Material for (1) the maintenance and repair of the property and equipment of producers as hereinafter defined, and (2) the continued operation of the property and equipment of such producers, a preference rating is hereby assigned to deliveries of such Material upon the terms hereinafter set forth. Such terms shall control until such time as the Office of Production Management certifies specific quantities of such Material to which the preference rating herein assigned may be applied, or until the Office of Production Management may specifically limit production by any type of producer or withdraw any type of Material from use by such producer, or until the Office of Production Management may issue an order specifically relating to the maintenance, repair and operation of the property and equipment of any type of producer.

(a) *Statement of Policy.* It is the purpose of this Order to effectuate the policy of the Supply Priorities and Allocations Board in maintaining governmental, charitable, and industrial property located in the United States, its territories and possessions, including the Philippine Islands, upon an adequate operating basis, without expansion or improvement of facilities except where duly authorized or approved. The terms and conditions of this Order are to be intercepted in conformity with this expressed policy.

(b) *Definitions.*

(1) "Producer" means:

(i) any governmental unit;

(ii) any individual, partnership, association, corporation, or other form of enterprise engaged in one or more of the following capacities to the extent that it is so engaged or so acts;

(a) manufacturing, processing, or fabricating;

(b) warehousing — maintaining warehouses for storage or distribution of any Material;

(c) wholesaling — acting as a distributor of products sold to manufacturers, wholesalers, retailers, or other persons not consumers;

(d) charitable institutions — any charitable or eleemosynary institution which is recognized as such for purposes of the Internal Revenue Laws of the United States;

(e) carriers — urban, suburban, and interurban common or contract carriers of passengers or freight by electric railway, electric coach, motor truck, or bus, including terminals of any of the foregoing; railroads, including terminals; shipping—commercial carriers of freight and passengers by ocean, lake, river, or canal, including terminals;

(f) educational institutions (including vocational training);

(g) printers and publishers;

(h) radio—commercial broadcasting and communication;

(i) telephone and telegraph communication, including wire services;

(j) hosptials, clinics, and sanatoriums;

(k) Petroleum and Natural Gas — discovery, development and depletion of pools of petroleum and associated hydrocarbons, and derivatives thereof, and transportation of petroleum, associated hydrocarbons and derivatives thereof;

(l) irrigation systems, whether publicly or privately owned; toll bridges and toll canals.

(iii) Any person using tools or equipment to repair or maintain the property of any Producer as defined in (b) (1) (i) and (ii)

(2) "Material" means any commodity, equipment, accessories, parts, assemblies, or products of any kind.

(3) Subject to subparagraph (6), "Maintenance" means the upkeep of a Producer's property and equipment in sound working condition.

(4) Subject to subparagraph (6), "Repair" means the restoration of a Producer's property and equipment to a sound working condition when such property or equipment has been rendered unsafe or unfit for service by wear and tear, damage, destruction of parts, or similar causes.

(5) Subject to subparagraph (6), "Operating Supplies" means any Material which is essential to the operation of the Producer's business and which is consumed in the course of such business including, but not limited to, lubricants, catalysts, small perishable tools, and ferrous material necessary for the fabrication of containers: *Provided,* it shall not include

(i) any Material which is physically incorporated, in whole or in part, into any material which the producer manufactures, distributes, sells, stores or transports; or

(ii) any material that is to be used as fuel; or

(iii) any non-ferrous material to be used as packaging supplies.

(6) The terms "Maintenance," "Repairs," and "Operating Supplies" *do not* include the following:

(i) The replacement of an item carried on the Producer's books as a fixed asset;

(ii) material which would not be carried on the Producer's books as Maintenance, Repairs, Operating Supplies, or the equivalent, in the Producer's established method of bookkeeping;

(iii) material for the improvement of a Producer's property or equipment through the replacement of Material in the existing installation, unless such equipment is beyond economic repair;

(iv) material for additions to, or expansions of, such property or equipment.

(7) "Supplier" means any person with whom a purchase order or contract has been placed for delivery

of material to a Producer or another Supplier.

(c) *Assignment of Preference Rating.* Subject to the terms of this Order, Preference Rating A-10 is hereby assigned:

(1) to deliveries, to a producer, of Material required by him as Operating Supplies or for the Maintenance or Repair of his property or equipment;

(2) to deliveries to any Supplier, who has received purchase orders rated under this Order from a Producer or from another Supplier, of Material which will be delivered by him or by another Supplier to the Producer to fill such rated orders, or which will be physically incorporated into Material which will be so delivered; or which will be used within the limitations of paragraph (f)(2) hereof, to replace in such Supplier's inventory Material delivered to fill orders rated pursuant to this Order or pursuant to Preference Rating Order No. P-22, as heretofore amended.

Provided, that when any General Preference ("E" or "M") Order assigns a specific preference rating to deliveries of any particular Material to be used by a particular industry or for a specific purpose, such preference rating shall control and the A-10 rating hereby assigned may not be applied; and *provided further,* that the preference rating hereby assigned may not be applied to deliveries of any Material to be used for purposes prohibited by any Order or Regulation issued by the Director of Priorities.

(d) *Persons Entitled to Apply Preference Rating.* The Preference Rating hereby assigned may be applied by:

(1) a Producer;

(2) any Supplier provided deliveries to a Producer or another Supplier are to be made by him, which are of the kind specified in paragraph (c) and have been rated pursuant to this Order.

(e) *Application of Preference Rating.*

(1) A Producer or Supplier, in order to apply the preference rating to deliveries of Material to him, must endorse the following statement on the original and all copies of the purchase order or contract for such Material manually signed by a responsible official duly designated for such purpose by such Producer or Supplier:

"Material for Maintenance, Repair, or Operating Supplies—Rating A-10 under Preference Rating Order P-100 with the terms of which I am familiar."

".....,"

Name of Producer or Supplier

".....,"

Signature of Designated Official

Such endorsement shall constitute a certification to the Office of Production Management that such Material is required for the purpose stated and that the application of the rating is authorized by this Order. Any such purchase order or contract for such Material shall be restricted to Material the delivery of which is rated in accordance herewith.

(2) The Producers and each Supplier placing or receiving any purchase order or contract rated hereunder, shall each retain, for a period of two years, for inspection by representatives of the Office of Production Management, endorsed copies of all purchase orders or contracts, whether accepted or rejected, segregated from all other purchase orders or contracts or filed in such manner that they can be readily segregated for such inspection.

(f) *Restrictions on Use of Rating.*

(1) Restrictions on Producer and Supplier—No Producer or Supplier may apply the rating hereby assigned to obtain scarce Material, the use of which could be eliminated without serious loss of efficiency by substitution of less scarce Material or by change of design.

(2) *Restrictions on Supplier*

(i) No Supplier may apply the rating to obtain Material in greater quantities or on earlier dates than required to enable him to make on schedule a delivery rated hereunder or, within the limitations of (ii) and (iii) below, to replace in his inventory Material so delivered. He shall not be deemed to require such Material if he can make his rated delivery and still retain a practicable working minimum inventory thereof; and if, in making such delivery, he reduces his inventory below such minimum, he may apply the rating only to the extent necessary to restore his inventory to such minimum.

(ii) A Supplier who supplies Material which he has in whole or in part manufactured, processed, assembled or otherwise physically changed may not apply the rating to restore his inventory to a practicable working minimum unless he applies the rating before completing the rated delivery which reduces his inventory below such minimum.

(iii) A Supplier who supplies Material which he has not in whole or in part manufactured, processed, assembled or otherwise physically changed may defer application of the rating hereunder to purchase orders or contracts for such Material to be placed by him until he can place a purchase order or contract for the minimum quantity procurable on his customary terms; *provided,* that he shall not defer the application of any rating for more than three months after he becomes entitled to apply it.

(g) *Restrictions on Withdrawals and Inventory.*

(1) Except as provided in paragraph (g) (3) and (4), no Producer who has applied the ratings assigned hereby shall, at any time, accept deliveries (whether or not rated pursuant to this Order) of any Material to be used as Operating Supplies or for Maintenance or Repair until the Producer's inventory and stores of Material to be used for these purposes have been reduced to a practicable working minimum. Such practicable minimum shall in no event exceed one hundred ten percent (110%) of the maximum dollar volume of Material to be used as Operating Supplies and for Repairs and Maintenance in inventory and stores during the corresponding calendar quarter of 1940.

(2) Except as provided in paragraph (g) (3) and (4), no producer who has applied the ratings assigned hereby shall, during any Calendar Quarterly Period, make withdrawals from stores or inventory of any Material to be used as Operating Supplies or for Mainte-

(*Continued on page* 70)

Your best measure of tape is a tape-measure

To all wholesalers and their salesmen:

The sale of friction and rubber insulating tapes on the basis of weight without consideration for footage is incompatible with the facts relating to the *manufacture* and use of these two commodities.

The weight of a roll of tape is not a true measure of the amount of tape available for use on splices or any other use for which friction and rubber tapes are intended. Footage counts.

The weight of a roll of tape has no direct relationship to the various physical properties of friction and rubber tapes such as tensile strength, adhesiveness, pinholes, etc. Quality counts.

The weight of a roll of tape gives no indication as to how it will age under different conditions of storage and use.

The smart wholesaler, therefore, sells ACCURATE Tapes of Guaranteed Footage—and since ACCURATE Tapes are made by specialists in tape manufacture you sell *guaranteed quality* too!

ACCURATE MANUFACTURING CO.
GARFIELD, NEW JERSEY

Forum IN PRINT

On 1940-Code Wires and Cables

Speaking as a Wholesaler: **Fred R. Eiseman**

Secy. and Treasurer
Revere Electric Supply Co., Chicago
Chairman Wire and Cable Committee
National Electrical Wholesalers Association

Wholesaler's Salesman
330 West 42nd Street
New York, New York

Dear Fred:

You asked me to give the wholesalers' viewpoint on the proposals now before the Bureau of Standards for simplification of sizes and grades of rubber covered wire.

As it was not possible for me to attend the meeting that was called for December 17 to consider this whole proposition, I wrote to the Bureau of Standards, briefly giving my own views. I stated simply that our company and other electrical wholesalers are in business to serve their customers and when orders are placed by contractors, industrials or federal agencies, we have no choice in the matter, for we must fill the orders if it is possible for us to obtain the goods that these customers want. We have very little to say about the specifications on orders that we receive and I consider this a matter for the contractors, the manufacturers and electrical inspection departments to solve.

All wholesalers would be greatly pleased if they could carry one grade of wire and a limited number of sizes, for this would reduce inventories and make our job much more simple. However, I believe that we should carefully analyze this proposal and see if it would bring about these results.

As I understand it, the Bureau of Standards can only make recommendations for simplification and standardization. It has no authority to compel manufacturers to limit their production to the sizes and grades of wire that might be recommended, nor has it the authority to compel the various municipalities to revise their Codes.

THE VIEWPOINTS of a prominent electrical contractor and a representative of a wire manufacturer were presented in our December issue. Herewith, a prominent electrical wholesaler gives his opinions. We invite comments from our readers.

Fred R. Eiseman

This schedule provides for the exclusive use of Type R or Code wire for sizes 14 to 1. My own opinion is that the various departments of the Federal Government would continue to specify Type RP, RH or JC 106 Wire just as they are doing at the present time. I think too that Type R wire in these sizes would not be satisfactory to engineers who write specifications for monumental jobs—buildings erected to last fifty years or more. In all probability, they would specify Type RH wire for such jobs.

Now take the other schedule.

From size O and larger, it is proposed to use Type RH wire. Here in our city and in most of the other large cities, Type R Code wire is acceptable to the electrical inspection department. Type RH is of course much higher in price. When contractors will be asked to figure on jobs, competition will force them to figure on Code wire when making up their estimates, and who could blame them.

All of this seems to mean that the wholesalers' customers would continue to order at least two grades of building wires in all sizes. Wholesalers would be called upon to supply it and I have no doubt that the manufacturers would fill our orders. So, the wholesaler in the performance of his function to give service to his trade, will be obliged to carry the same stocks that he does now.

All that I have said regarding the different grades of wire might apply to sizes too. It will be a long time before all of our customers know that No. 10 and No. 6 wire are not supposed to be made. They will continue to order these sizes from wholesalers and again the manufacturers will fill their wholesalers' orders.

I am wondering if we are not going too far in simplification. In fact it does not seem reasonable that we should want to bridge that wide gap between a battleship and a barn with one grade of wire. I believe that it is possible to do it with two grades. Our type R Code wire is a good product. Let it serve all of the ordinary requirements. Then let us have Type RH wire to supply the various departments of the Federal Government and for use in wiring those monumental jobs, and we will have the whole field covered pretty well. If such recommendations were made, the Federal Government agencies, engineers and manufacturers might be persuaded to discontinue 30 percent Type RP and JC 106, and we would then have arrived at a simplification of rubber covered wire that would function.

I am heartily in favor of the proposal to return to the old standards of carrying capacity of rubber covered wires. As long as any of us can remember, No. 14 wire has carried 15 amperes. In the 1940 ratings, Type R wire still carries 15 amperes. Type RP, 18 and RH, 22 amperes. This 1940 specification has not been put into effect in Chicago, and I understand that the inspection departments of many other large cities do not like it. A glance at the table will show that a contractor could use No. 14 RH wire instead of No. 12 Code, 12 instead of 10, 10 instead of 8, 8 instead of 6, and if these tables were in effect, the contractor would have to figure these smaller sizes of wire to be competitive on a job. The result would be an overloaded circuit with voltage drop at every outlet.

And from the wholesaler's standpoint, this would mean excessive life and inefficient operation of lamps, slow heating and unsatisfactory performance of appliances and many returns with claims for defects on perfectly good merchandise. It seems to me that this invitation to use smaller wires and overload circuits antagonizes everything that we have tried to do in the cause of adequate wiring. For these reasons I am glad to see the suggestion that the National Code return to the old tried and tested table of carrying capacities.

I feel that there is much that can be done in the simplification of wire and many other electrical lines which the wholesaler handles. But the answer to these desires seems to be in education and persuasion. First, to get the various departments of our Federal Government to think in harmony, then, to have manufacturers cooperate to make simplified plans effective.

TABLE I

Wire Sizes AWG	1937 (and prior) Ratings	1940 Ratings			Suggested Sizes and Ratings	
		R	RP	RH	R	RH
14	15	15	18	22	15	
12	20	20	23	27	20	
10	25	25	31	37	—	
8	35	35	41	49	35	
6	50	45	54	65	—	
5	55	52	63	75	—	
4	70	60	72	86	60	
3	80	69	83	99	—	
2	90	80	96	115	80	
1	100	91	110	131	100	
0	125	105	127	151		150
00	150	120	145	173		—
000	175	138	166	199		200
0000	225	160	193	230		—
250	250	177	213	255		—
300	275	198	238	285		—
350	300	216	260	311		300
400	325	233	281	336		—
500	400	265	319	382		400

Reprint from December 1941 Wholesaler's Salesman

By D. P. Caverly
Illuminating Engineer
Hygrade Sylvania Corp.

Bright Future for Black Light

TO the layman, "Black Light" seems to have an ominous and mysterious meaning. Two antithetical words bound together as a term or phrase quite naturally cause some amount of subconscious questioning because the words just don't belong together.

As a matter of fact, the only mysterious thing about "Black Light" is that it isn't light at all. Neither is it black.

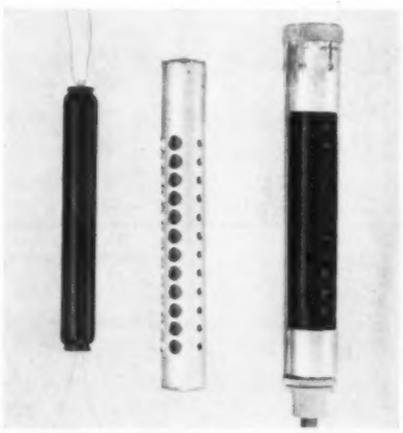
So-called "Black Light" is invisible ultra-violet radiation of the correct wavelengths to activate (or cause to glow) certain minerals and chemicals. These chemicals can be made up in the form of powder such as is used on the inside of fluorescent lamps, or they can be developed into paint, lacquer, dye, ink and similar materials which, when applied to various objects and exposed to the ultra-violet, will give forth visible light of various colors.

Once merely a theatrical novelty, "Black Light" is now very practical. The war, and defense activities prior to its declaration, have opened up new fields of application which are much broader in scope than at first realized. At present these fields do not affect directly the wholesale or retail outlets of electrical merchandise, because the character of them is such that very close work between the manufacturer and consumer is essential. Much of this work is experimental in nature, requiring frequent and radical changes in design. Furthermore up to now the applications have been limited to very few industries.

Figure 1 illustrates the type of "Black Light" lamp and equipment which shows most immediate promise from a practical use standpoint. It is the unit being used in several types of fighting planes for illumination of indicating dials on the instrument panels. Although this application of light may seem to be insignificant in fighting plane design, it is actually a vital factor. The problem of driving an automobile at night with distracting and annoying dashboard lights is well known, and modern cars provide the means for either dimming or switching off dash light entirely. In the cockpit of a plane, however, the instrument dials and gauges must be clearly visible to the pilot at all times. As a matter of fact, the instrument dials are indispensable, particularly for night flying. The pilot of a bomber, pursuit, combat or interceptor plane, is a busy man. He may have to watch the ground, or enemy ships ahead, above, below or in back of him. He must also know his speed, altitude, bank and turn factors, and countless other things. His life may depend upon instrument dials which are clearly visible without the slightest trace of glare, even when all surroundings are jet black.

After considerable experimentation, it has been found that dial numerals which glow within themselves cause much less distraction from brightness and reflections than those illuminated either directly or indirectly from light sources. Thus has come the application of "Black Light" to activate numerals and dials painted with fluorescent materials. Such materials have usually been green when activated, but pink has more recently received some consideration. Figure 2 illustrates the appearance of instrument dials in the dark.

There appears to be a rather broad future to "Black Light" for applications similar to this one. Automobiles may come to use it for dashboard illumination, because the less distraction drivers have to contend with, the better our safety and accident records will be. A number of cocktail lounges, theater lobbies and similar locations have been illuminated by painting designs on the ceiling and walls, and then "floodlighting" those areas with "Black Light". The results are often very striking and unique, but until such time as many more installations are made, and until additional applications are developed, the wholesaler's place in the "Black Light" picture depends upon how good a job of pioneering he is willing to do with an eye to future sales.



"Black Light" equipment (Fig. 1, left) used to activate the fluorescent painted dials (Fig. 2, left, below) in a warplane cockpit. (Pictures Hygrade - Sylvania Corp.) (Below) Installing "Black Light" equipment for decorative purposes. This mercury spotlight lamp, housed behind a purple glass filter, will cause properly treated ceiling decorations to glow with subdued light. (Westinghouse Photo.)

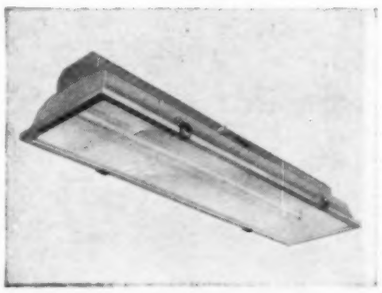
New Products You Can Sell

DOOR BUTTON

Door button, styled in Colonial manner, has a plate of solid cast tarnish-proof brass with a pearl button inset in center. Assembly is designed to fit any standard door frame. NuTone Chimes, Inc., Cincinnati, Ohio.

When writing mention WHOLESALER'S SALESMAN

FLUORESCENT LUMINAIRE



Fluorescent luminaire, type FPS-40, uses 2 or 3 40-watt fluorescent lamps per reflector, provides lighting intensities of from 30 to 100 footcandles. May be mounted on conduit, messenger cable, twin-rod suspension, directly on ceiling. Westinghouse Elec. & Mfg. Co., East Pittsburgh.

When writing mention WHOLESALER'S SALESMAN

FOR YOUR PROTECTION . . .

Fluorescent Ballasts built to rigid standards and tested for compliance with the high qualifications established by the Underwriters and the Electrical Testing Laboratories, are your best assurance for long life, trouble free installations, and satisfied customers.

Insist that all Fluorescent Ballasts you install bear the three seals that stand for dependable performance— (UL) for Safety: (ETL) for Operating Standards: (CTC) for Quality. Chicago Transformer Fluorescent Ballasts are designed to more than meet established standards, built under an exacting control system for uniformity and subjected to constant tests to assure maximum lighting efficiency.

CHICAGO TRANSFORMER CORPORATION
3501 WEST ADDISON STREET • CHICAGO

RUBBER COVERED POWER CABLES • BUILDING WIRE

A Tough Cable For Tough Jobs!

CRESCENT

Imperial Welding Cable

The enormous increase in welding required for the manufacture of ships, tanks and other defense items is being met by the use of CRESCENT Imperial Welding Cable.

This cable is of the highest quality, as is the complete line of wires and cables made by CRESCENT.

CRESCENT INSULATED WIRE & CABLE CO.

CRESCENT
WIRE and CABLE
Factory: TRENTON, N. J.—*Stocks in Principal Cities*

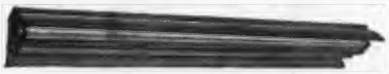
JOBBER COOPERATION—
A PERMANENT POLICY

CRESFLEX NON-METALLIC SHEATHED CABLE • SERVICE ENTRANCE CABLE • MAGNET WIRE • BARE WIRE

ARMORED CABLE • FLEXIBLE CORDS • LEAD ENCASED AND PARKWAY CABLES • VARNISHED CAMBRIC

CRESCENT ENDURITE SUPER - AGING INSULATION

FLUORESCENT UNIT



V-Type two-lamp industrial fluorescent unit has porcelain enamel reflectors. Available for 20W or 40W fluorescent lamps. Hangers and fittings available for flush mounting or for hanging at required levels below ceiling. The Wiremold Co., Hartford, Conn.

When writing mention WHOLESALER'S SALESMAN

SAFETY SWITCH

Vacu-break safety switch incorporates features such as clampmatic switch contacts, simplified operating mechanism, formed bakelite arcing chamber, front operated rocker handle. Switch is available in Master Type A and Standard Type C Lines from 30 ampere to 200 ampere inclusive. Bull Dog Electric Products Co., Detroit, Mich.

When writing mention WHOLESALER'S SALESMAN

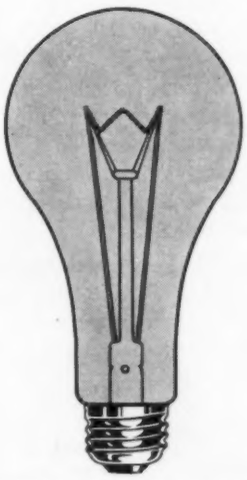
RECEPTACLES

Porcelain two-piece cleat receptacles No. 66613, with rectangular base and shadeholder groove, are specified for installation where knob and tube or

open wiring is used. Pull-chain type is rated at 250 watts, 250 volts. Pass & Seymour, Inc., Syracuse, N. Y.

When writing mention WHOLESALER'S SALESMAN

DRYING LAMP



Infra-red drying lamp, 100-watt, may be used where relatively low heat intensities are required in quickly drying paints and heating other materials. It must be used with a separate reflector preferably of Alzak aluminum or gold-plated metal. Westinghouse Elec. & Mfg. Co., Bloomfield, N. J.

When writing mention WHOLESALER'S SALESMAN

CONNECTOR

Type NVT is an all-clamp T-Connector for tapping from tubing. Flattened U-Bolt on tap accommodates large range of cable sizes. On large conductor sizes, four oval-shank bolts are used to clamp the run conductor. For small sizes, two bolts are used. Burndy Engineering Co., Inc., New York, N. Y.

When writing mention WHOLESALER'S SALESMAN

Why GOODRICH QUALITY PROTECTS YOUR INVESTMENT IN LIGHTING

Wise buyers insist upon Goodrich porcelain enameled lighting equipment for good reasons. Its high reflective efficiency is not lost with the years. It's permanent—immune to atmospheric conditions and corrosion. It's easy to clean—to insure a constant high standard of illumination Whether it's for incandescent or for fluorescent lighting—indoors or out, Goodrich porcelain enameled reflectors are sound protection for any investment in lighting equipment.

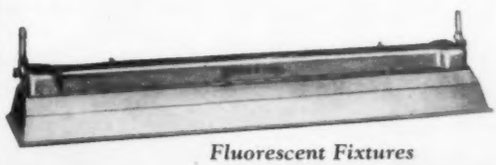
THE GOODRICH DISKONECT *is the simplest detachable reflector ever made. It lights when it locks.*

GOODRICH
Industrial Lighting

GOODRICH RLM

In addition to all styles of R. L. M. approved fixtures, the Goodrich line includes hundreds of sizes and styles to answer every need in industrial lighting. Several exclusive styles are shown here.

No. 90 Floodlight *Stocklite* *High Bay Fixture* *Vaporlite*



Fluorescent Fixtures

Literature is available on all Goodrich fixtures. Catalog sheets on request.

SOLD ONLY THROUGH ELECTRICAL WHOLESALERS

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OFFICES IN ALL PRINCIPAL CITIES

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YOU SELL CUSTOMER
Satisfaction
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QUADRANGLE 500 WATT RLM

• QUAD Units all have correct basic design and construction features. The RLM Label on QUAD Lighting Units assures your customers of modern, correct, and high quality commercial and industrial lighting. It's the line that will be popular tomorrow as well as today.

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DOME REFLECTOR

QUADRANGLE MFG. COMPANY
Mfgrs. of Incandescent and Fluorescent Lighting Equipment
32 SO. PEORIA ST. CHICAGO, ILL.

WHOLESALERS' NEW CHARTER

(*Continued from page 60b*)

nance or Repair the aggregate dollar volume of which shall exceed one hundred ten percent (110%) of the aggregate dollar volume of the withdrawals of such Material during the corresponding quarter of 1940, or, at the Producer's option, twenty-seven and one-half percent (27½%) of the aggregate dollar volume of the withdrawals of such Material during the calendar year 1940.

(3) From time to time the Director of Priorities may determine that certain Producers or classes of Producers are exempt, in whole or in part, from the restrictions contained in paragraph (g) (1), and (2).

(4) Restrictions contained in paragraph (g) (1) and (2) shall not apply to any Producer during any Calendar Quarterly Period in which

(i) the total volume of his purchases of Material for Maintenance, Repairs and Operating Supplies does not exceed five thousand dollars ($5,000); and (ii) the total volume of his withdrawals of Material for such purposes does not exceed five thousand dollars ($5,000).

(h) *Audits and Reports.*

(1) Each Producer or Supplier who applies the preference rating hereby assigned, and each person who accepts a purchase order or contract for Material to which the preference rating is applied, shall submit from time to time to an audit and inspection by duly authorized representatives of the Office of Production Management.

(2) Each such Producer or Supplier shall execute and file with the Office of Production Management such reports and questionnaires as said Office shall from time to time request. No such reports shall be filed until such time as the proper forms are prescribed by the Office of Production Management.

(i) *Utilities and Mines Excepted.* This Order is not applicable to any Utility defined as a Producer in Preference Rating Order No. P-46 (section 978.1) as amended from time to time, nor to any Operator as defined in Preference Rating Order No. P-56 (section 982.1). The Director of Priorities may from time to time specifically except further classes of Producers from this Order by specific direction.

Dan Dunne Joins Edwin F. Guth Co.

Electrical wholesalers in Iowa, Nebraska and Northern Illinois will be seeing Dan Dunne as the new representative of the Edwin F. Guth Company of St. Louis. Dunne used to be a jobbers representative in Chicago and prior to this new appointment was with the Chase Brass and Copper Company. He is planning to organize a "Study Club for Jobbers' Salesmen" in his new territory. At the meetings he will illustrate his talks with projection slides showing outstanding luminaire installations.

Wholesaler to Head National A/W Bureau

Herbert Metz, general lamp and lighting sales manager of the Graybar Electric Company, will succeed W. E. Sprackling, vice president Anaconda Wire and Cable Company, as chairman of the executive committee of the National Adequate Wiring Bureau. In taking over the job relinquished by Mr. Sprackling, who has guided the affairs of the bureau since it was launched four years ago, Mr. Metz brings real enthusiasm about the adequate wiring program and long acquaintance with it. He has been identified with the activity as chairman of the Plan Committee since it was initiated.

New Addresses

Offices and showroom of the American Air Conditioning Distributors are now located at 4511 N. Broad Street, Philadelphia, Pa. Telephone number has been changed to Michigan 4466.

The new Detroit business address of the Jefferson Electric Co., is 1015 Transportation Building, with a new telephone number, Randolph 3994.

Future of Copper Supply Subject of OPM Hearing

In the face of more than one congressional hearing on the conduct of SPAB in regulating the supply and allocation of copper, this top defense agency has directed OPM to hold an open hearing on the subject with particular emphasis on methods of stepping up production.

The results of this hearing, which will have Chester Davis as impartial chairman, may give electrical wholesalers some lead regarding future allocations of copper for the products they need to fill non-priority orders. Since the OPM's ban on certain civi-

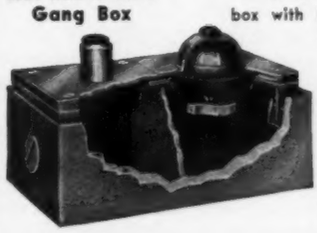
FOR EVERY INDUSTRIAL, COMMERCIAL OR RESIDENTIAL REQUIREMENT...

Sell the time-saving line...

LATROBE

FLOOR BOXES *and* WIRING SPECIALTIES

No. 252-R Two Gang Box

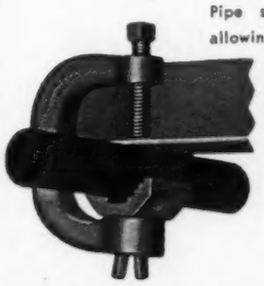


Two gang adjustable floor box with No. 208 receptacle in one section. One cover plate with ½" flush brass plug and the other cover with 2" flush brass plug.

No. 150 BOX WITH No. 207 NOZZLE

An Underwriters' Approved box, suitable for installation in concrete floors or in wood finished concrete floors. Quickly and easily installed. Tops of boxes are easily adjusted.

No. 470 PIPE OR CONDUIT HANGER



Pipe support turns freely, allowing pipe to run parallel or at right angles to beam. Does away with drilling or use of straps. Handles ½", ¾" and 1" pipe to steel beams ⅜" thick.

No. 251-R ADJUSTABLE GANG FLOOR BOX

Similar to No. 130 round cover box, except sides are flat for additional conduit holes. Furnished with No. 208 receptacle and 2" flush brass plugs.

To meet the expanding requirements of your buyers, sell the LATROBE LINE... it's complete in every detail, including floor boxes and wiring specialties adapted to commercial, industrial and residential jobs.

Aside from the fact that the LATROBE LINE is complete as to products, there are many other features that make their sale easier. First among these is the time-saving element. Each LATROBE item has been designed to decrease installation time... an important point to stress to contractors. Then, too, each LATROBE Floor Box or Wiring Specialty is flexible as to use ... safe and long-lived in operation, and made of the best materials available.

So, stock the line that saves time ...sell LATROBE wherever quality, useability and economy are the desired features. Write for our price and product list today... also a copy of our distributor plan.

FULLMAN MANUFACTURING CO. QUALITY AT LATROBE SUPREMACY LATROBE, PA.

Write for details TODAY!

FULLMAN MANUFACTURING COMPANY

LATROBE • • • • PENNSYLVANIA

To the non-technical buyer, one make of Fluorescent equipment may look so much like the others that he can only *guess* which is the RIGHT one to choose. As a result, many an inferior fixture has been selected just because it "cost a little less."

But gradually, as utilities and architects spread the facts, more and more business men realized that the *real bargain* in Fluorescent lighting is the BEST ENGINEERED JOB. That is why so many leading firms are now insisting on LINOLITE—the equipment that is *Engineered for Performance* and *Guaranteed for Satisfaction* by FRINK, pioneers in Fluorescent lighting and leading manufacturers of lighting equipment since 1857.

Mail the coupon below for our new brochure of Frink installations and valuable Fluorescent engineering data. It shows why it pays to

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Please send me your new brochure on "The Ultimate in Fluorescent Lighting."

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lian uses of copper, small business has been bombarding Congress asking reasons and flinging accusations at the apparent inability to increase copper production to meet rising needs for this essential metal.

Recommended Levels Of Illumination

The wholesaler's salesman making a lighting sale will find useful the leaflet which was enclosed with the December issue of the Better Light Better Sight News. The tables give recommended lighting intensities for many types of industrial interiors, offices, drafting rooms, schools and public buildings and are based on careful studies of what should be prevailing practice.

Figures given represent what should be prevailing practice. They are not minimum standards, but averages, and can be varied considerably in the upper levels according to conditions met.

Niagara Group Elects

More than 400 attended the annual meeting and all-industry banquet of the Electric Association of the Niagara Frontier. Twenty-two directors were elected for one-year terms. Representing wholesalers and manufacturers are George Campbell, R. H. Davison, R. D. Glennie, Karr Parker, K. L. Thielscher and Henry Vidal. The others elected will represent wiring contractors and dealers, central stations, transmission and power companies, etc.

Square D Dividend

DETROIT, MICH.—Stockholders of the Square D Company of this city are receiving a dividend of $1.50 a share on the common stock and a regular quarterly dividend of $1.25 on the company's preferred stock. This action by the Board of Directors brought the total common dividends declared in 1941 to $3.00 a share, compared with a total of $2.80 a share in 1940.

Promotions By Westinghouse

Announcement was made by B. W. Clark, president of the Westinghouse Electric Supply Co., that Curt L. Blumer of the Pittsburgh sales force becomes merchandise manager of the East Central District with headquarters in Pittsburgh. E. C. Ricker southwestern district merchandise manager will headquarter in Dallas, Texas.

Mr. Blumer, originally from Millvale, Pa., has been with Westinghouse since 1920. Mr. Ricker was born in Beaufort, S. C., and joined Westing-

NEW CHANCES FOR PROFIT

Sell *Paragon*
TIME SWITCHES
FOR DEFENSE

Yes . . . there are *many* new chances for you to profit by selling Paragon Time Switches and Timers for defense jobs. The key to these chances is the Paragon catalog, shown here. It contains illustrations, complete electrical descriptions and engineering data.

17 USES FOR ONE UNIT

Moreover, it suggests numerous applications for each unit. For instance, 10 uses are listed for the 900 Series Industrial Timer, such as plastic moulding, heat treating and machinery operation. 17 typical applications are shown for Z Series, Automatic Reset Timers and Time Delay Relays; et cetera.

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Free copies are available to you and to your industrial customers and live prospects. Send us any reasonable number of firm names and their key executives and we will mail complimentary catalogs directly to them. Mail your list today.

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403 S. Dearborn Street, Chicago, Ill.

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BUILDERS OF CONTROL INSTRUMENTS SINCE 1905
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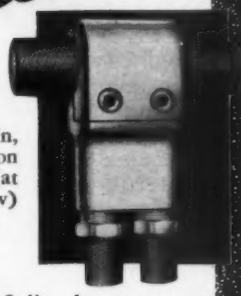
The MOST COMPLETE LINE OF
Tee Connectors



ALL good types —any size.

With a *hinged clamp* for the main, the Penn-Union Type HFM (at right, and below) is easy to apply.

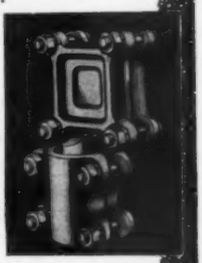
Split sleeve contact unit gives permanent grip on branch.

Made for single or multiple branch connections.

ALSO CABLE TAPS — a complete line of 90° and Parallel taps, for one or more branches.

COMPACT and POSITIVE. The Penn-Union Type SM gives equal tightening on the run and tap. Self-locking, dependable.

CLAMP TYPE TEES for all sizes of tubing and cable—a full line. Machined contact surfaces.



MANY MORE TYPES—for all combinations. For connecting flat bar, run or tap, to tubing or cable. Also "general utility" tees that take a wide range of conductor sizes. You will find that the Penn-Union line has *exactly what you need.*

FOR ANY CONDUCTOR FITTING—Terminals, Service Connectors, Studs, Two-Ways, Ground Clamps—see the THOUSANDS in the Penn-Union Catalog.

Preferred by the largest users, who have found that *Penn-Union on a fitting is the best guarantee of Dependability.*

Sold by Leading Jobbers

Write for Catalog

PENN-UNION ELECTRIC CORPORATION

ERIE, PA.

PENN-UNION

Conductor Fittings

house in the refrigeration and air conditioning department in 1933.

W. M. Kline, whom Mr. Blumer succeeds, is being transferred to managership of the Toledo, Ohio, branch. W. L. Howlett, Toledo manager, moves to Cleveland, Ohio, in a similar capacity. Cleveland manager, W. W. Adams becomes apparatus and supply manager of the Ohio division, with offices in Cleveland.

Hygrade Gets Ford Fluorescent Contract

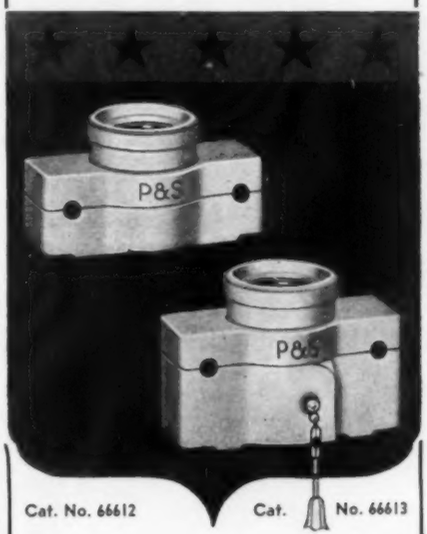
NEW YORK, N. Y.—Approximately 156,000 fluorescent lamps are called for in Hygrade Sylvania Corporation's contract to light the new $47,000,000 Ford bomber plant at Ypsilanti, Michigan says W. E. Poor, Executive Vice-President of Hygrade Sylvania in announcing the world's largest fluorescent lamp lighting contract.

The number of lamps scheduled to provide simulated daylight to the 3,700,000 feet of floor space where Ford workmen will produce four-engined Consolidated B24D bombers, approaches the industry's total 1938 output of 200,000 lamps. This contract alone will require twelve fully-loaded freight cars to transport the lamps. The power consumed by all of them would light every home in Columbus, Ohio, with its 280,000 population, and laid end-to-end the lamps would extend 118 miles.

The size of this contract emphasizes the country-wide acceptance of fluorescent's "northern daylight" as a vital production necessity in America's war effort. The ability to fill such an order shows how the industry has expanded from its 1938 beginning through a 1941 production of approximately 21,000,000 lamps to a predicted 1942 total of 40,000,000.

THE NEW G.E. Photolamp Sales Department will be headed up by O. H. Young, who has been in charge of trade promotion for the Lamp Department at Nela Park. Mr. Young has been associated with the promotion of lamp sales since 1920.

P&S
WIRING DEVICES
for
NATIONAL
DEFENSE



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INDUSTRIAL

Underwriters Laboratories Inc. INSPECTED ELECTRIC FIXTURE

UNDERWRITERS APPROVED

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CERTIFIED FLEUR-O-LIER

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- For Individual or Continuous line installation.
- Patented "One Man Installation" device for easy hanging.
- Wiring accessible without dismembering the fixture.
- Provision for addition of a third lamp.
- "Klasium White" reflecting surface . . . our permanent enamel finish.

WRITE FOR BULLETIN 275 AND "KLASIUM" FOLDER WITH SAMPLE

LIGHTING PRODUCTS, INC.
HIGHLAND PARK, ILLINOIS, U. S. A.

Fluorescent Lamp Prices Are Further Reduced

Reduction in the list prices of Mazda Fluorescent Lamps was put into effect January 1st by the lamp departments of both General Electric and Westinghouse. Included are the daylight, white, soft white and colored types.

The price drop for the most popular daylight and white types is: 14-watt T-12 from 90¢ to 80¢; 15-watt T-8 from 75¢ to 65¢; 15-watt T-12 from 95¢ to 80¢; 20-watt T-12 from 95¢ to 80¢; 30-watt T-8 from 95¢ to 80¢; 40-watt T-12 from $1.35 to $1.15; and 100-watt T-17 from $3.00 to $2.60.

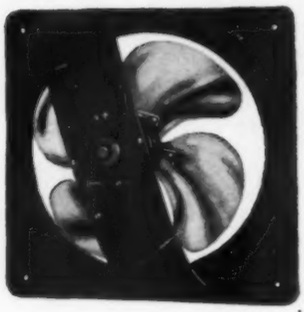
The growing demand for fluorescent lighting has resulted in increasing many manufacturing economies in fluorescent lamp factories, according to General Electric, thus permitting the passing on to the consumer of the saving through a price reduction.

Triangle Conduit Moves

The entire headquarters, organization and executive offices of the Triangle Conduit and Cable Co., Inc., were moved by December 29th to the company's new location at Triangle and Jersey Aves., New Brunswick, New Jersey. Previous site was in the Elmhurst section of New York City.

I.E.S. Meetings Talk Higher Light Levels

NEW YORK—The question "Why should I use fifty foot-candles when twenty is all I need?" was answered for members at joint meeting of the New York section Illuminating Engineering Society and American Institute of Electrical Engineers. The meeting was held in the Engineering Society Building on January 6. This continued with the trend of thought of the previous I.E.S. meeting which was devoted to the topic "Lighting in Industry During the Emergency."



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I like to sell TRICO because:

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- I get all the repeat business on fuses and elements.
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TRICO POWDER PACKED FUSES

STOP WASTED KILOWATTS AND WASTEFUL SHUTDOWNS

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The ALLEN Easy Method of SODERING

Builds Good Business —
A Flux for every need

- Sodering Paste
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We have a chart which shows the melting point of all Soders—it's free—send for it!

L. B. ALLEN CO., INC.
6701 Bryn Mawr Ave. Chicago, Ill.

Association Doings

NEW ORLEANS—Over 4500 people visited the Fluorescent Futurama when it visited New Orleans recently. The exhibit which was presented under the sponsorship of the Electrical Association of New Orleans and the power companies created much favorable comment and was followed by a three-day conference covering the design, installation and sale of fluorescent lighting fixtures.

CHICAGO—A double feature program entertained members of the West Suburban Electric League at the December meeting. They saw "Railroadin'", a full color and sound movie with professional cast presented by the American Locomotive and General Electric Co., and "Exploring with X-Rays," the story of the discovery and development of the X-Ray as presented by G.E.

KANSAS CITY—The Electric Association of Kansas City has been talking and thinking about both war and civil welfare. The story of the Lake City Ordnance Plant was told to them by Herbert Dorr, works manager of the plant, at the November meeting, while in December attention turned closer home for a talk on the "Activities of the Public Works Department."

BUFFALO—"A Night In an Army Canteen" was the title and theme of the Electric Association of the Niagara Frontier's all industry banquet, held on December 15.

FOURTH TERM PRESIDENT of the Electrical Association of Philadelphia is A. L. Halstrom, re-elected for 1942 by the Association's Board of Governors. Mr. Halstrom is Vice President of the Graybar Electric Company, Inc. Serving with him are these newly elected officers: Vice President, Howard L. Miller, President of the Utilities Engineering Company; Treasurer, Phillip H. Ward, Jr., President of the Ward Electric Company; Secretary, Robert J. Moran, Chief of the Electrical Department of the Middle Department Rating Association.

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G-E Neon Glow Lamps, excellent for pilot lights and indicators, have made hundreds of electrical products more convenient, more useful, more attractive and safer. Why not stock the complete line?

And when you call on manufacturers . . . or when you call on apartments, office buildings, and public buildings . . . you'll find a plus market for glow lamps . . . for exit lights, signal lights, and other purposes.

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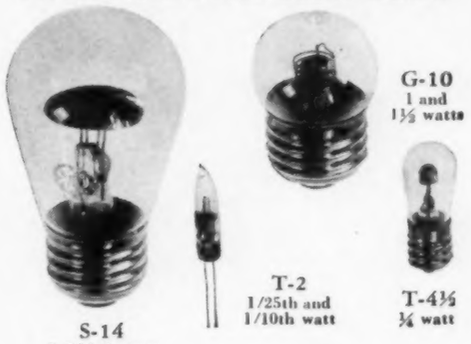

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G-E Neon Glow Lamps are rugged, long-lived, and dependable, and they withstand shock and vibration to an unusual degree.

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GENERAL ELECTRIC

410 Eighth St., Hoboken, N. J.

And there's just as much difference between the *streamlined* BRIEGEL METHOD of making connections and former old-fashioned methods.

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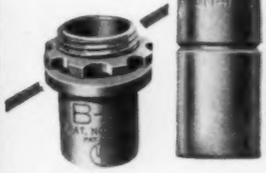

No extra turns or twists, no nuts to tighten when you use B-M connectors and couplings. Just TWO SQUEEZES with the patented B-M indenter (which costs you only $1.25) and you have a smooth efficient job.

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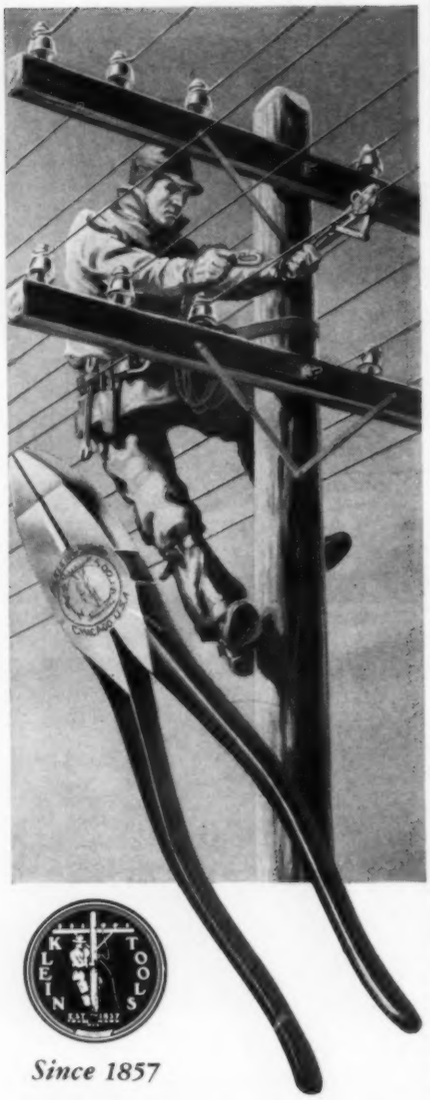

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